PRESS PHOTOGRAPHY

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PRESS PHOTOGRAPHY

Reporting with a Camera

ROBERT B. RHODE
Associate Professor of Journalism
University of Colorado

FLOYD H. McCALL
Chief Photographer
The Denver Post

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Foreword

IT HAS BEEN EIGHTY-ONE YEARS since the invention of the halftone process first made possible the reproduction of photographs on the printed page. In those eighty-one years, the art and science of photojournalism have quite literally changed the course of human events.

Before the halftone, most people's knowledge of what was going on in the world depended upon the accuracy or fallibility of writers and sketchers and imagination. Printed photographs confirmed the accuracy and exposed the fallibility of writers, and superseded sketches and the imagination with reality.

The welding of the reporter's facts and statistics to the photographer's visual proof provided the total journalistic implement. It meant that no person ever need be uninformed.

It is not paradoxical, but typical of the last two decades that they have brought greater advancement in the techniques, mechanics, and concepts of printing photographs than was witnessed in all the other years combined.

One of these advancements: color.

The Denver Post and a few other great newspapers of America are dominant today in the field of color reproduction. This is because they have strived, both independently and in concert, to perfect the process by which newsprint could convey pictures in living pigments.

It took time, and great expense. It also took a fair degree of experience. With the latter asset, *The Denver Post* happened to be fortunately endowed in the person of Floyd McCall, chief of its photography department, and co-author of this work.

With the same energy, dedication, and intelligence that had already earned him the Diamond Sprague Memorial Award, NPPA's highest honor, McCall stroked boldly into the largely uncharted seas of color. Just about everything was new, and much that was new needed improvement. A great deal remained to be discovered, invented, or applied. Whole processes were devised, tried, and rejected. Actually, it required the perfection of several vastly different processes and the merging of them into a harmonious, compatible system.

By the time *The Denver Post* could call its color product good—it is not yet perfect—Floyd McCall knew most of what there was to know about his own profession, and much about the work and problems of engravers, stereotypers, and pressmen.

All of this would fill a book. But it might never have done so without the inspiration and devoted effort of a professor of journalism at the University of Colorado, Robert B. Rhode.

Rhode, with ten years' experience as a writer and photographer on small town and metropolitan newspapers, a tour of duty in military intelligence, and additional knowledge gained from wire service and radio work, brought all these, plus a missionary-like zeal for journalism, into his teaching career. Before coming to the University of Colorado at Boulder he had taught journalism at the University of Denver and the University of Southern California.

Fortunately, or perhaps inevitably, Rhode, the writer-editor-educator, and McCall, the professional, became the book-creating version of the indispensable reporter-photographer team.

The result is this book, of which much can be said, but which can be best summed up with this: it covers the subject of press photography.

It is a book that every photographer should read, and which must become the textbook for all photojournalists.

Palmer Hoyt, Editor and Publisher,
The Denver Post

Preface

THE WOULD-BE PHOTOJOURNALIST really faces only two major tasks. The first is learning to control light. The second is learning to tell an honest story with a moment's slice of time. The authors have assumed the reader will come to this book with a background knowledge of news and newspapers and so have made no attempt to discuss the fundamentals of reporting which are as basic and necessary for the news photographer as for the news writer. They have also assumed that readers will already know the step-by-step process in exposing and developing photographic films and prints, or will gain that knowledge through classroom and laboratory sessions or through study of one or more of the many basic books on photography. This book deals largely with refinements of special significance to the press photographer in learning to control a medium exceptionally fitted for effective communication of facts and ideas.

This book is the result of a collaboration which has included not only the two authors whose names appear below, but many other persons who contributed ideas and inspiration long before this work was ever conceived, and others who offered encouragement and criticism after the manuscript was begun. We acknowledge our special debt to the National Press Photographers Association (NPPA) and to the following individual members of that organization: Joseph Costa of King Features and Chairman of the NPPA Board; J. Winton Lemen, Manager of the Photo Press Sales Division, Eastman Kodak Company; John Faber of Eastman Kodak Company and NPPA Historian; Charles T. Higgins of *The Philadelphia Bulletin* and Chairman of the NPPA Police-Fire-Press Relations Committee; Ed Maker of *The Denver Post* and Vice-President of NPPA Region Nine; John Swanburg of Heiland Division, Minneapolis-Honeywell Corp., Denver; and James E. Robbins, Photojournalism Director, Graflex, Inc. Help and encouragement also came from A. Gayle Waldrop, Director of the College of Journalism, University of Colorado; John Mitchell, assistant professor of journalism, University of Colorado; William Keel, court reporter for *The Nashville Tennessean;* and from many others too numerous to list. The authors are also grateful to the many photographers and newspapers who contributed photographs for inclusion in this book, and to Fred and Jo Mazzulla for their aid in final checking of page proofs.

Robert B. Rhode
Floyd H. McCall

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i *The Photojournalist's Language*

WE SHOULD UNDERSTAND FOR ONCE and all that a photographer is no mere flash-popping technician. He is an artist, capable of recording on film the full range of human experience: the terrible and the tender, the ludicrous and the lovely.

He can tell an important truth on film, a truth that was blurred and softened by words.

He is the discreet recorder of a moment of sorrow and shame. He is the silent witness of unspeakable horrors. He is the poet who writes a lyric of a sunrise in his lens. He is the man of compassion who conveys the look of life itself: the weariness of the surgeon at midnight, the wondrous laughter of a child, the disappointment of the defeated.

Because he is a sensitive artist—in the same serious sense that our finest reporters are artists—he can picture the events and atmospheres of our time, with superb intuitive skill, even in the rush of daily deadlines.

—Jack Wallace *

Words, either spoken or written, provide the most commonly used method of communication. But the world has known since the days of the caveman that it is also possible to communicate through the use of pictures and with the twentieth century's tremendous advances in the technical realm of photography (literally "writing with light"), communication with pictures, even over vast distances, poses no more—and in some cases, fewer—problems than communication with words.

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* From a column called "From the Editor's Viewpoint," written by Jack Wallace of the *San Francisco Examiner* for the *National Press Photographer,* monthly publication of the National Press Photographers Association.

A Universal Language

Photography is a communications tool, a language, sometimes defined as "the most universal of all languages." There are justifications for such a definition.

First, photography has the two great and related advantages of accuracy and authenticity. A photograph is a mirror of reality. It presents its subject or event edited down to essential details, each detail accurately presented as it was in reality. One of the best of the Civil War photographs shows a dead Confederate sharpshooter sprawled behind a rock barricade at Gettysburg. This is no pen-and-ink interpretation of how it was; this photograph shows accurately where he fought and fell; here is the distilled essence of Gettysburg.

A photograph carries inherent within it an intimate sense of reality. To be photographed, an event must have actually happened and the camera must have "eyewitnessed" the happening. We can draw a picture or write a word description from memory —or from imagination for that matter—but no such license is permitted with photography. Automatically, then, a photograph generally carries more conviction because we have more difficulty in attempting to deny its authenticity. Photographs can be false, of course, but the forgery, more often than not, is easily detected. And once an honest photographic print has been produced, it is difficult, even impossible, to force it into the mold of dishonest editorial bias. It can be, and has been done, but rarely without detection. A photograph is factual, often brutally so, even—as Albert Moldvay, *Denver* (Colo.) *Post* photographer, once phrased it—to the point of exposing the ineptness of the photographer.

Second, photography has an advantage as a language because it does not rely upon abstract symbols—words. Photography, thus, is more direct and less subject to misunderstanding. The mind must use words as tools for drawing a mental picture on which

Albert Moldvay, *The Denver Post*

"He is the poet who writes a lyric of a sunrise in his lens." In 1960, Albert Moldvay was named newspaper photographer of the year in the annual News Pictures of the Year competition.

to base an interpretation of what has been read. "Reading" a picture provides a short cut: the picture is already provided and it only remains for the viewer to make an interpretation based on his own experience. The semantic problem, except where it may arise in the meaning and relationships of words in the picture's caption, has been avoided.

Theoretically the best way to get information of an event is to view it personally as it happens. The next best is a picture of that event, and in actuality the picture taken by a skilled news photographer may be better than personal experience, since the photographer can emphasize the real meaning of the event by editing" with his lens, cutting out extraneous detail, showing participants in a meaningful relationship from a viewpoint that might not be available to a bystander at the scene. But neither personal experience nor viewing a photograph of an event will eliminate the need for words. The written account can present background the bystander had no opportunity to acquire, or can present details that the bystander missed. And, in addition, the written account can and usually does present aspects of an event that could not be given visual representation with the camera. The photograph does not often supplant the report in words, but it does often present a message with more meaning for more people than does the written report.

Third, photography has an advantage in the speed with which the image is recorded. Photography, in a way, arrests time, gives us a slice of a single instant to view at our leisure. Thus, we may see more clearly and accurately what happened in that instant than if we had only a memory of what our eyes reported. This speed of photography has been developed to a fantastic degree with electronic flash which permits the camera to slice time into millionths of a second. Photography's speed, of course, can be a disadvantage, too, since what happened in a given fraction of a moment is often not the complete story of an event, and, in fact, is frequently not the most significant part of an event. Photography is not a *perfect* medium of communication; it is *a* medium, exceptional for its universality when used properly.

Fourth, photography is a universal language in the sense that photographs are not "foreign" to anyone, no matter what his native tongue, although, obviously, interpretations of photographs will vary with different experience backgrounds of viewers. The camera's film in the hands of a skilled technician, who has something to say, needs no translation; it needs only the basically mechanical process of developing and printing in the darkroom to express its message forcefully and clearly. A Frenchman who knows no English can understand the message in a photograph taken by a skilled American photographer. Snap a picture of a child who has just been given a new toy, anywhere in the world; then try to tell the story of the same child in words alone so that it will be understood wherever it might be read.

Tom Brunk, *The Lima* (Ohio) *Citizen*

"He is the man of compassion who conveys the look of life itself." The photographer caught much of the story of a Seoul orphanage in this shot of two Korean children.

The universality of photography becomes obvious. The person who can read no word language at all, can understand a photograph, assuming that the subject lies within his range of experience.

As a communication medium—a universal language—photography, then, has few, if any, equals. Photographs can be accurate, concise, without sacrificing details (an advantage that should be the envy of every word reporter harassed by the newspaper editor's command to "boil it down but don't leave out anything"). Photographs inform at a glance, like ideal newspaper headlines, but usually escape the criticism of superficiality so often directed at headlines. And photographs cut through language barriers to report an event with a minimum of distortion.

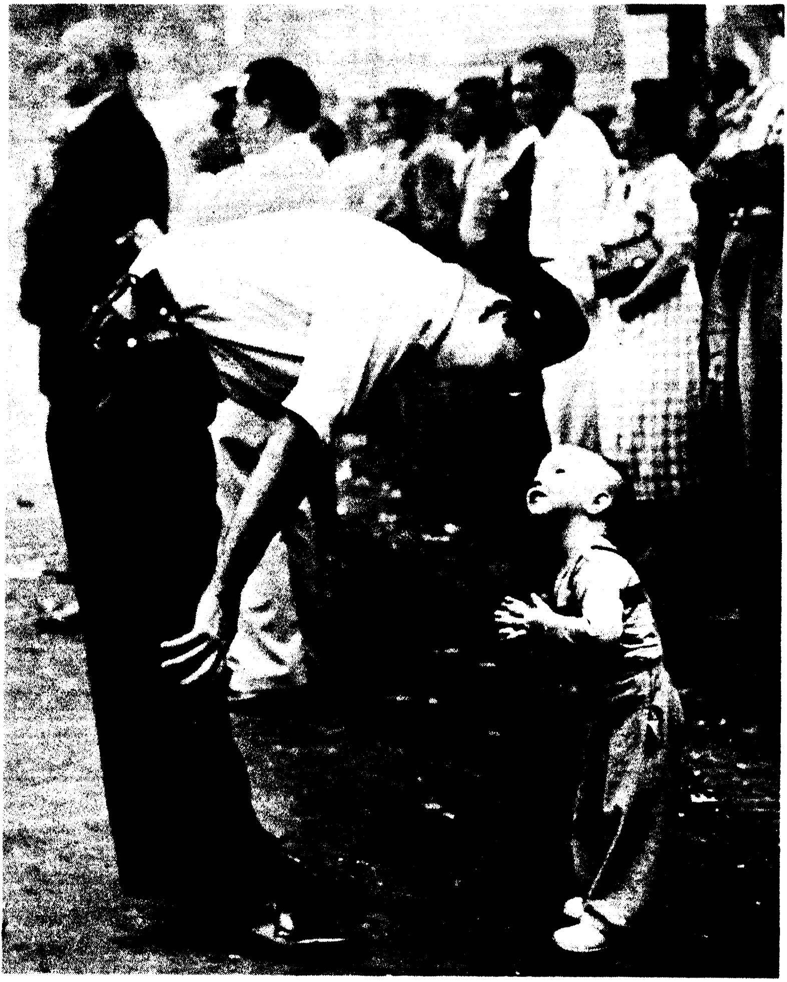
The Camera Reporter

There was a time—as short a time as thirty years ago—when getting an image on the negative was considered adequate. If you could do that consistently and drew a salary check from a newspaper, you were a press photographer, although the best of the early press photographers even further back than thirty years ago went much beyond merely producing an image. Still, the majority of the men with the title of press photographer were little more than skilled and salaried snapshooters. Today this is no longer sufficient. It may be that thirty years ago the clumsy equipment available made mastery of that equipment the fundamental consideration. More important, that equipment of thirty years ago limited the journalistic range of the camera reporter. There wasn't much the photographer could do in the way of realistic camera reporting when conditions dictated use of that very dubious device, flash powder. Early photographers were also handicapped by unsympathetic editors who lacked understanding of photography's role—editors who thought of pictures as mere static illustrations of written stories and tolerated them only because they provided a nice way to break up the columns of type. A few of these editors are with us yet.

Today, mastery of photographic equipment is taken for granted. It's not enough to provide a technically good print that will make a satisfactory engraving for the blotter-like surface of newsprint. The print must be a photograph that tells a story. It's not enough for it to be merely an illustration of the reporter's words. Both the reporter's words and the photographer's picture must help carry the burden of telling the story. There is just as much journalism in pictures as there is in the written word. The press photographer is no longer a camera operator—he is a camera reporter. Or, to use a term that has gained considerable currency in recent years, he is a photojournalist: one who reports and interprets news and features, and even editorializes primarily by means of the camera—a photographer and a journalist at the same time. The term, photojournalist, implies a considerable degree of technical proficiency with the camera coupled with a sincere, thoughtful, guided effort to communicate. It implies knowledge on the part of the practitioner that extends far beyond the field of photography itself.

Few newspaper managing editors will hire a man as a reporter because that man can spell, knows grammar, and can type. These accomplishments are admirable and essential, but it's generally conceded that they are only the very first basic skills the reporter needs. His abilities and knowledge must extend much further. So should it be with the press photographer. Composition, focusing, and cameras for the photographer correspond to the reporter's spelling, grammar, and typewriter. Manual dexterity in pounding the typewriter or manipulating the camera's controls must be developed before full concentration can be devoted to telling the story, but manual dexterity alone is not enough. Properly spelled words, grammatically arranged with a typewriter won't necessarily result in a readable, informative news story. A well composed, correctly focused snapshot can be just as dull and uninformative. It's not the gadget, the camera, that makes photography a "universal language"—it's the man behind the camera.

The man with the pencil, the man with the camera—both are reporters. Basically their jobs are the same and each needs an understanding of the other's tools and techniques. Many editors these days expect the word reporter to recognize news picture possibilities, and they expect the photographer to spot angles



William C. Beall, *The Washington Daily News*

"He is an artist, capable of recording on film the full range of human experience." This picture, titled "Faith and Confidence," won the Pulitzer prize for news photography in 1958.

of the story that can best be told in words. This helps to explain why one newspaper editor declared: "No one should get a journalism degree without an indoctrination in news photography." In a team operation that involves both use of the typewriter and the camera, can the typewriter specialist do his job with full effectiveness without understanding the role of the camera?

Both the pencil reporter and the camera reporter must function to some extent as editors; they must disentangle, isolate the story from an almost inevitable accompanying mass of nonessential details. The camera reporter must think in terms of the capabilities of his film and lens and in terms of what part of the story can best be told visually, to bring the people in the news close to the reader, make them step off the newspaper page and into the living room. This involves thinking, not with words, but with pictures, using mental visualization of finished prints to select the photogenic aspects of the story. So the editor who is looking for picture-conscious pencil reporters is not asking for someone who can explain gamma, or the *H* and *D* curve, or reciprocity failure, but someone who has some understanding of film and lens capabilities and who can "think" with photographs as well as words.

The rise of photography as a journalistic tool has in no way decreased the importance of words in the newspaper or news magazine. There is nothing magical about pictures *per se.* For every photograph that may be worth a thousand words—and there have been a few news photographs worth much more—there are undoubtedly dozens that aren't even worth the two words "junk it." The camera reporter should be granted equal status with the pencil reporter, but he merits no lofty throne. He must meet the same tough standards as a news gatherer as does his partner with the pencil. Both must learn the fundamentals of news reporting. That the two jobs are basically the same is attested to by the fact that more and more competent journalists who perform both jobs well are appearing on American newspaper payrolls. The day may yet come when a man known primarily as a photographer becomes a managing editor.

ii | Photography's History

NO ONE MAN INVENTED PHOTOGRAPHY. Alchemists, chemists, artists, physicians, physicists, all had a hand in developing this technique of writing with light. Two discoveries, centuries apart in time, established the basis for photography. First, on a date we don't know, man observed that light coming through a small hole in a wall of a darkened room would project an image of whatever lay outside on the opposite wall. The principle involved in the *camera obscura* (literally "dark room") was probably known as early as 1100 and Leonardo da Vinci described it in his private notes which were made public after his death in 1519. Inevitably experimenters learned they did not need a dark room; a box would serve as well when fitted with a lens at one end and a frosted or ground glass at the other. By 1700 the portable *camera obscura* had become standard equipment for amateur and even professional artists who traced the image cast by the lens on the ground glass.

In 1727, Johann Heinrich Schulze established that the blackening of silver salts, observed by many others before him, was caused by light, not by heat. Thus the two basic factors needed for development of photography were known: light could be used to cast an image and silver salts could record that image. It remained to find ways to combine the optical phenomenon with the chemical reaction in a way that would provide a permanent image, letting the light do the work up to then performed imperfectly by the artist's sketching pencil.

The Daguerreotype

About 1822 a Frenchman, Joseph-Nicéphore Niépce, had some degree of success in permanently fixing the camera's image. Many learned of his experiments, including Louis Jacques Mandé Daguerre, who was at work on the same idea. A polite but largely distrustful correspondence between the two men lasted for about three years before they formed a partnership. Niépce died in 1833 but Daguerre continued the experiments and in 1839 at a joint meeting of the Academy of Science and the Academy of Fine Arts in Paris the daguerreotype process was revealed. Daguerre was granted an annuity by the French government and his invention given to the world without restrictions.

In brief, the daguerreotype was made by coating a copper plate with silver, which was then highly polished and exposed to iodine fumes. This iodized silver surface was then exposed in the camera for several minutes in bright sunlight. The exposed plate was developed over a cup of heated mercury and then the image was fixed in a solution of sodium thiosulphate. Gold tinting was a frequent added step adopted later.

The daguerreotype had two major disadvantages: It was a positive, in photographic terminology of today, not a negative. (Each picture was unique; it could not be duplicated.) And exposures were long, usually many minutes. In about a year this latter disadvantage was overcome to some extent as other men developed a double lens that passed sixteen times more light than the simple meniscus used in Daguerre's original camera, and still others discovered the use of the accelerator, or in the daguerreotypist's terms, quickstuff. This simply involved exposing the silvered plate to bromine fumes as well as iodine fumes. These two improvements reduced exposure times under good light conditions to less than a minute and made portraits possible, and portraiture was the greatest activity of the daguerreotype era.

While Daguerre was at work in Paris, an English scientist, William Henry Fox Talbot, was also busy. Talbot was producing pictures on paper soaked in silver chloride and silver bromide, and later he used silver iodide. These were reversed images, negatives, and when copied they produced positives. Thus Talbot established a concept basic in modern photographic technique: the negative-positive process. Both Daguerre and Talbot followed a suggestion made by Sir John Herschel in fixing their images. It was Herschel who suggested the use of sodium thiosulphate, the "hypo" of modern-day terminology. Herschel is also the man, apparently, who coined the term "photography."

Talbot's early pictures were faded, misty images compared with the daguerreotype, although by 1841 he had invented improvements which he controlled stringently by patents. This restriction on the use of the process variously called calotype and talbotype kept it from equaling the tremendous popularity of the daguerreotype. But there were other reasons for the daguerreotype's supremacy. Talbot's process was slower and required longer exposure times. In addition, the fibers of the paper negative were reproduced in the print and obscured some of the image detail. Only in France, apparently, did the calotype flourish. An attempt to popularize Talbot's process in the United States failed as Americans flocked to daguerreotypists for the brilliant and precisely defined portraits that photographers produced by the thousands.

Samuel F. B. Morse, inventor of the telegraph, has been called the father of American photography. This may be giving Morse more credit than is his due. Morse was among a number of individuals who began experimenting with daguerreotypes as soon as details of the process arrived in America in the fall of 1839. It is true that Morse taught a number of others how to produce daguerreotypes, including the most famous nineteenth century American photographer, Mathew B. Brady. And Morse, in 1840, made a news-type daguerreotype when he pictured the reunion of his Yale University class.

Americans carried the daguerreotype to its highest technical peak and widest popularity. In 1850 there were 71 daguerreotype studios in New York City alone. At the London World's Fair in 1851 three American daguerreotypists came away with top honors. They were John A. Whipple of Boston, and Brady, and M. M. Lawrence of New York. Whipple received special recognition for his daguerreotype of the moon, taken with the aid of an observatory telescope at Harvard. In New York, Horace Greeley's *Tribune* flatly declared: "In Daguerreotypes we beat the world."

The Wet-Plate Process

In the same year that the American daguerreotypists were winning acclaim in London, a new photographic process was revealed that was to make the daguerreotype almost a curiosity in another decade. This was the wet-collodion process, or more simply the wet-plate process, discovered by Frederick Scott Archer, an English architect. Collodion was first discovered about 1847, and was used to supply a protective covering for wounds. It is a mixture of soluble guncotton (pyroxylin), alcohol, and ether that will quickly dry to form a thin, colorless, elastic film on any surface on which it is spread.

To make a wet-plate negative the photographer flowed an even coating of collodion, to which iodide and often bromide had been added, on a glass plate. The coated plate was then soaked in a bath of silver nitrate and the silver iodide or bromide thus formed made the plate light sensitive. It was put, still wet, into a light-tight plateholder, the holder positioned in the camera, the lens cap removed for an exposure of several seconds, the cap replaced. The plate had to be immediately developed with pyrogallic acid or ferrous sulphate and fixed.

These wet-plate negatives were frequently converted into positives by simply placing the glass against black material or painting the back of the glass black. By using thin metal plates japanned black or chocolate color, instead of glass, photographers were soon producing tintypes.

Daguerreotypy continued to flourish despite this new competition until a third modification of the collodion process was developed. This was the *carte-de-visite* photograph, a portrait approximately the same size as a visiting card. Using multiple-lens cameras and movable plateholders, photographers took eight or a dozen poses for *carte-de-visite* portraits on a single negative, which could be printed as one exposure and then the finished print cut up into the separate portraits. Cheap mass-production had been achieved.

The daguerreotype was doomed. The advantages of the wet-plate negative-positive process were great. It offered an easy means of fast, cheap duplication. Unlike the easily damaged surface of the daguerreotype, the image on the finished paper print of the wet-plate process would not rub off; it did not have to be kept under glass. And this image on paper was without the metallic glare that obliterated the daguerreotype image completely if the angle of the light were wrong. But above all, *carte-de-visite* photographs were cheap, a dozen paper process portraits costing less than one daguerreotype.

But the wet-plate process had its disadvantages, too. It was a clumsy, messy and exacting technique; miscarriages could and often did strike at any stage of the process. The glass had to be coated, sensitized, and developed at the time and place the photograph was taken. Under average conditions the useful life of a wet plate was approximately ten minutes; it had to be exposed and developed while still wet. A delay of only a few minutes on either side of the exposure could mean a serious, even disastrous, loss of brilliancy and depth in the final product. If the photographer took his camera into the field, the darkroom went, too.

Mathew B. Brady

Some photographers were attempting to do more than produce hundreds of stylized portraits. An unknown daguerreotypist took a few pictures (not action scenes) of the Mexican War (1846–1848) but they received almost no attention since there was no way to reproduce them for wide distribution. Perhaps the first combat photographer was Roger Fenton, who equipped a wagon as a traveling darkroom and "covered" the Crimean War in 1855 with wet plates. He returned with more than three hundred negatives of French and British soldiers at campsites at Balaklava Bay and the Valley of the Shadow of Death.

But Fenton's achievement was overshadowed a few years later by an American photographer, Mathew B. Brady, whose coverage of the Civil War has been called "one of the greatest achievements in the annals of photography."

Brady had started in photography as a daguerreotypist and, like most others, had switched to the wet-plate process. By 1860 he was the most fashionable American photographer of his day, operating palatial studios in New York and Washington. But he virtually abandoned this lucrative business to cover the Civil War because "I felt I had to go." Friends predicted his war venture would bring financial ruin and their prediction proved correct. There was no extensive market for his war pictures, no way for magazines or newspapers to reproduce them except by costly engravings made by artists copying his photographs.

Brady was not a press photographer, but he and a number of his assistants, notably Timothy O'Sullivan and Alexander Gardner, were camera reporters. Students of photojournalism will find it worth their time to examine reproductions of Civil War photographs taken by Brady and his assistants. The end of the war found Brady with 7,000 glass plate negatives, including 30 of Abraham Lincoln made between 1860 and 1864. Part of this collection was eventually purchased by the government, but many other negatives fell into private hands, a large number going to a photo supply house to pay Brady's account. Despite the careless neglect with which many of these negatives were treated after Brady's financial failure, an extensive collection has survived and is now being carefully preserved. Representative photographs from the collection can be viewed in such books as *The Photographic History of the Civil War,* edited by Francis Trevelyan Miller; *Mr. Lincoln's Camera Man* by Roy Meredith; *Divided We Fought,* edited by David Donald; and *Mathew Brady, Historian with a Camera* by James D. Horan. The achievement of Brady and his assistants in producing hundreds of technically superb negatives that still yield brilliant, story-telling prints is made even more remarkable by the fact that they had to work with the clumsy, frustrating wet-plate process in traveling darkrooms, called "Whatisit Wagons" by the soldiers.

Frontier Photographers

After the war Brady relinquished his role as America's leading camera reporter. His place was taken by a number of others, including at least two men who were Brady-trained. One was Alexander Gardner, a Scot newspaperman, who came to the United States a few years before the war to join Brady. It was Gardner who photographed the Lincoln conspirators after their capture (see Horan's *Mathew Brady*), the dedication of the Gettysburg monument, and he photographed a government office clerk in the woman's clothing reportedly used by Jefferson Davis in an escape attempt. Another one-time Brady employee who performed notable photographic feats during and after the war was Timothy O'Sullivan, the man who made the starkly revealing "Harvest of Death" picture at Gettysburg.

Both Gardner and O'Sullivan went west after the Civil War, Gardner to do a photographic documentary of the building of the eastern division of the Union Pacific Railroad. (It was a Mormon photographer, Charles R. Savage, who took the photograph recording the driving of the last spike at Promontory Point, Utah, in 1869.) O'Sullivan went with government exploration parties to Nevada, Panama, and New Mexico. In Nevada he took pictures by magnesium flare hundreds of feet down in the Comstock Lode mines.

Camera reporters covering the advance of the frontier from the Mississippi River across the Rocky Mountains usually took several cameras, and of course the inevitable darkroom equipment, since they were still tied to the wet-plate process. They needed more than one camera, as insurance against accident, for one thing, and also so they could shoot negatives of various sizes. Enlarging was possible, but not practical and seldom used. And the vast panoramas of the West frequently demanded large size pictures.

Probably the biggest camera ever taken to the West in the pioneer era was one that produced negatives 20 × 24 inches, owned and operated by William Henry Jackson, the most indefatigable of the frontier photographers, and the most famous. Jackson needed one mule alone to carry that huge camera on a Hayden survey of 1875 to the Rocky Mountains and the Southwest. On other mules or in a wagon went other cameras, lenses, plateholders, 400 glass plates, a "darktent," chemicals, trays, and even water.

Jackson and his darkroom tent accompanied the famous Hayden survey of 1871 that explored the region now known as Yellowstone National Park. His photographs of the hot springs, geysers, falls, and canyon of the Yellowstone River were the principal evidence used in persuading Congress to establish the nation's first national park.

Jackson's career—he died in 1942 at the age of 99—extended from the wet-plate era to the time when what he executed with his 20 × 24-inch camera and clumsy darkroom impedimenta could be duplicated with a 35mm camera weighing less than a single glass plate he used in 1875.

The Gelatin Emulsion: Photography Made Simple

Long before Jackson's career had ended (he executed a series of murals on the Old West for the Department of Interior Building in Washington, D.C., when he was 93), new inventions had brought about another revolution in photography. The speed with which the wet plates lost their sensitivity as they dried was a major concern to photographers. The trouble developed because when the collodion dried, excess silver nitrate crystallized on the surface and spoiled the plate. First attempts were directed toward finding a hygroscopic substance that would delay the drying. Experimenters tried honey, sugar, glycerine, even beer.

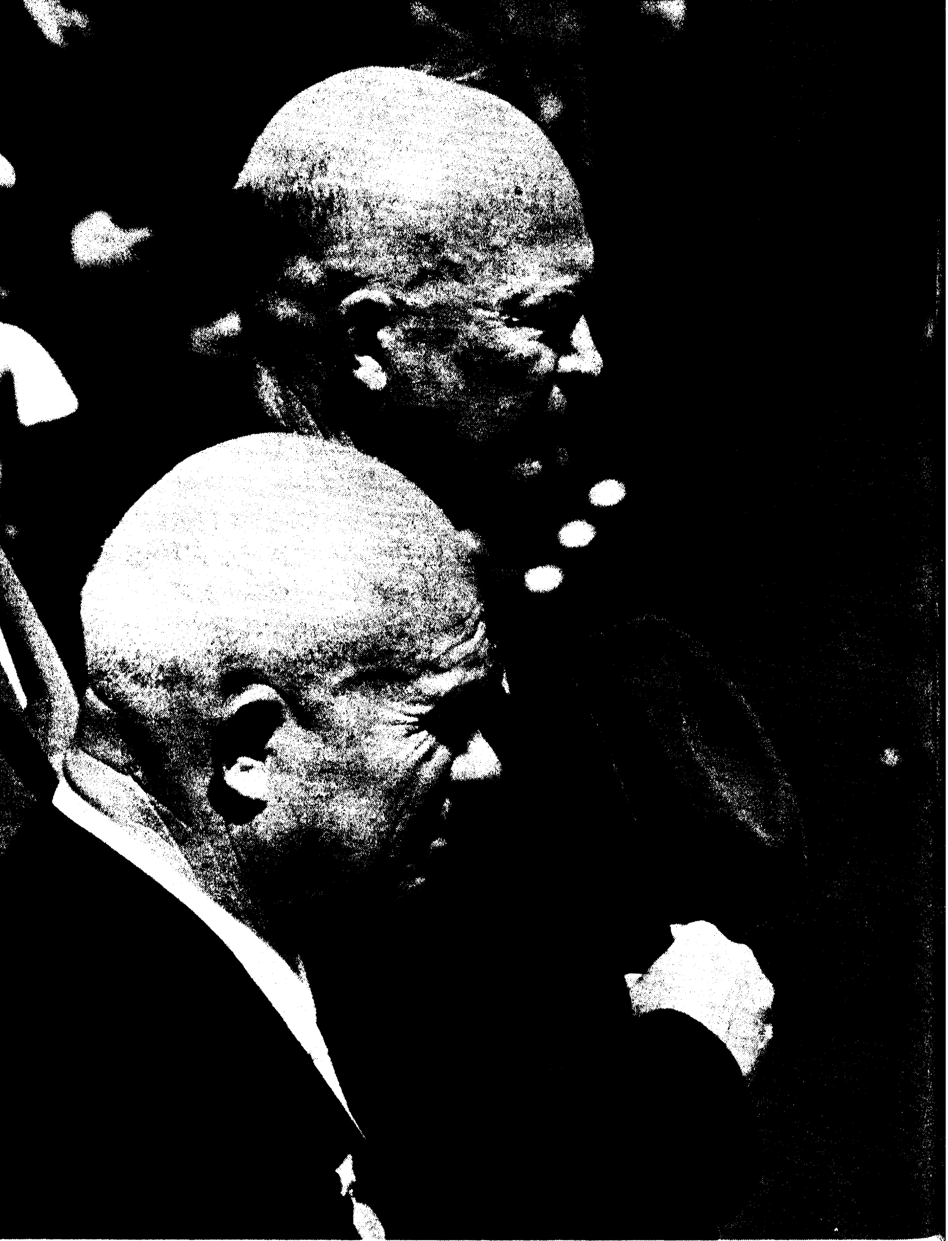
In 1871, the year Jackson photographed the wonders of Yellowstone with the wet-collodion process, R. L. Maddox, a British physician and amateur photographer, revealed that he had succeeded in making a light-sensitive emulsion with gelatin instead of collodion. Silver nitrate crystals also collected on the surface of the gelatin emulsion, but the gelatin could be washed and the excess silver salts removed. This pointed the way to dry plates and freedom from the burden of the traveling darkroom. Others experimented with Maddox's idea and by 1879 fairly fast dry plates were available. Manufacturers began to make the gelatin plates; photographers bought them, exposed them, and often turned them over to someone else for developing some days, even weeks, after they had been exposed. Of equal importance, the gelatin emulsions were many times faster than the collodion type; exposures with the early dry plates were reduced to less than a second and, with the rapid-fire improvements that followed, to 1/50 of a second and even less under the best conditions. The "ripening" process made these instantaneous exposures possible. The gelatin emulsion was heated after washing and this greatly increased its light sensitivity.

The fast gelatin emulsions could also be spread on paper for making prints (negatives were still on glass). Enlarging was thus made practical by artificial light. This was the so-called "gaslight paper"; it quickly replaced the old printing-out paper which was so slow—so insensitive—that the sun was the only source of light bright enough to make enlargements.

In 1884 George Eastman and W. H. Walker found a way to stick the gelatin emulsion to a roll of paper. This led to the first roll film camera, the first Kodak, marketed in 1888 with the slogan, "You press the button, we do the rest." The camera was supplied loaded with enough film for 100 shots. Exposed film, still in the camera, went back to the manufacturer for processing. The reloaded camera was returned to the owner with his finished prints, which were circular. By 1889 a flexible film base of nitrocellulose dissolved in alcohol had replaced the paper base and the day of the amateur snapshot photographer had arrived. Hand cameras—everywhere. All the picture-taker had to do was aim the camera and trip the shutter; he was no longer required to manufacture or process his own film and prints.

Early News Illustration

Newspapers had not waited for the revolution in photography before they attempted to illustrate the news. Cartoons and drawings were used in the American colonial press, famous examples being Ben Franklin's "Join or Die" snake cartoon in the *Pennsylvania Gazette* in 1754 and Paul Revere's engraving of five coffins published in the *Boston Gazette* after the "Boston Massacre." Efforts at illustrating the news in the nineteenth century were comparatively infrequent but attempts were made. In 1835 James Gordon Bennett published in the *New York Herald* a drawing of the old Merchant's Exchange building which had burned in the great fire of that year. Ten years later the same newspaper published what purported to be a drawing of General Jackson's funeral, but rival papers ridiculed it as the same engraving the *Herald* had previously used to illustrate the story of Queen Vic-



Harry Harris, The Associated Press

Modern equipment increases the photographer's chances of catching the historic moment. A closeup view of the chiefs of the two most powerful states in the world in 1959 was shot with a 300mm lens on a Hasselblad camera.

toria's coronation, the funeral of General William Henry Harrison, and the Croton Water Celebration.

Nathaniel Currier had a lithography shop in New York in the 1840's and no connection with the newspaper press, but he initiated an effort to illustrate spot news events when many passengers lost their lives in the burning of the steamboat, *Lexington,* on Long Island Sound. Currier's prints of an artist's conception of the disaster found eager buyers. This sort of thing became a Currier specialty. He was later joined by James Merritt Ives and the shop became Currier and Ives. Their news prints usually were available in New York a day or two after an event had been reported in the papers.

Prior to and during the Civil War, the weeklies accomplished more than the dailies in illustrating the news. *Frank Leslie's Illustrated Newspaper,* a New York weekly founded in 1855, and *Harper's Weekly,* started in 1857, provided illustrations of news events by using woodcuts of line drawings. Later, these and other publications used line cuts etched by acid on zinc. No one had yet found a way to reproduce the photograph's complete range of tones. Woodcuts and zinc etchings reproduce only the full tones, the blacks and the whites, but not the intermediate range, the half tones. The Civil War demanded pictorial as well as word coverage and *Harper's Weekly* artists copied Brady photographs for etchings. Dailies confined themselves largely to use of war maps.

The Halftone

The first American daily to use illustrations regularly, the *New York Daily Graphic* founded in 1873, was forced to rely on the usual line drawings. But the manager of the *Graphic's* photomechanical department was Stephen H. Horgan and he was interested in a halftone photoengraving process demonstrated in the 1850's in England. In America, experiments of Frederick

Eugene Ives at Cornell University's photographic laboratories led to significant improvements in the halftone process by 1877. In 1880 the first newspaper halftone appeared in the *Graphic.*

But there was no mad scramble among newspaper publishers to use this new process. The earliest halftones were crude at best and printers scoffed at the idea of ever applying the method to the fast rotary presses of the daily newspapers. But the popularity of news illustration was increasing, especially following the astounding success of Joseph Pulitzer's *New York World,* which used, for its day, a lavish number of woodcuts and zinc engravings, especially in the Sunday edition. Other newspapers followed the *World's* lead and the possibilities of the halftone process began to seem more attractive.

Ives and others improved the process and by 1890 wood engravers were alarmed. The revolution was coming but it took another ten years to arrive. In 1897 Horgan, now employed by the *New York Tribune,* demonstrated conclusively that halftones could be used by daily papers and by 1900 woodcuts as illustrations in all types of publications had shrunk to a minority. Still, many newsmen scorned the new technique of pictorial journalism and many newspaper readers branded it as "sensationalism."

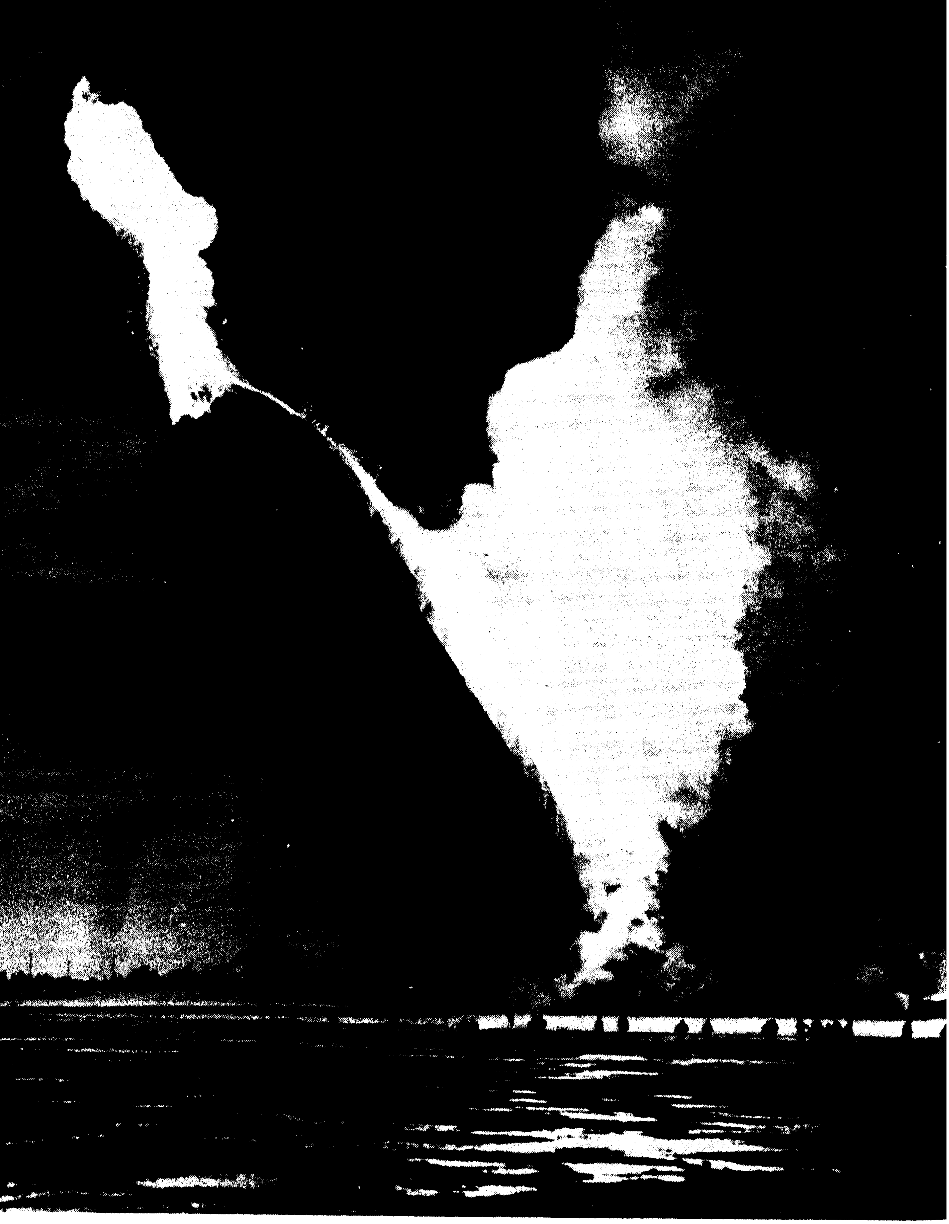
Adaptation of the halftone engraving to the high speed newspaper presses coincided with the rise of "yellow journalism" and concern by members of the legal profession over the individual's right of privacy. One of the notable characteristics of the so-called "yellow press" which fattened circulations on sensationalism was the lavish use of pictures. These yellow journals were still using line cuts from drawings but were in the forefront in use of the halftone as well. Artists and photographers covered the Spanish-American War side by side. Probably the most famous of the Spanish-American War camera reporters was Jimmy Hare of *Leslie's Weekly.* The reaction against yellow journalism was to some extent a reaction against news photography. In some newspapers pictures totally without any value in reporting the news were used and a few editors condoned outright photographic fakery. This sensation-mongering led opinion leaders to wonder if there shouldn't be a legal right to be let alone—a right of privacy. Before legal steps were taken to stunt the growth of legitimate news photography, the public reaction against the yellow journals forced a general cleanup. News photographers accepted a more responsible role and readers came not only to accept but to expect photographs in the newspapers.

Syndicates furnishing photographs sprang up and all large newspapers added cameramen to their staffs. Most of these men were still uncertain about their function and the great majority of news pictures were stiff poses of individuals obviously ill at ease before the camera's lens. If photographers still felt somewhat self-conscious on the job, the subjects before their cameras were much more so. Still, outstanding examples of camera reporting appeared occasionally.

Hine, Riis, Stieglitz

Gradually, as printing processes were improved in the twentieth century, the stature of the photographer improved. His work could now be easily duplicated for thousands of viewers. The twentieth-century camera reporters could expect a better fate than Brady's. Like Brady, they turned to photography to help tell stories that needed telling. Two of these were Lewis W. Hine, a sociologist who began to photograph in 1905, and Jacob A. Riis, New York newspaper reporter who took up photography to help him tell the story of "how the other half lived."

Hine used his camera to expose the exploitation of child labor in American factories and his photographs were instrumental in the crusade that culminated in child labor laws. Shortly before World War I he turned his lens on the thousands of



Murray Becker, The Associated Press

When the giant dirigible Hindenburg exploded at Lakehurst, N.J., May 6, 1937, news photographers there to record a routine mooring had 47 seconds to get pictures before the airship lay smouldering on the ground. Each of those 47 seconds was filled with wild confusion and distractions. But the photographers got their pictures; some, like this one, were destined to become classics in picture reporting. (Photo copyright by the Associated Press) immigrants arriving at Ellis Island and after that war he photographed American Red Cross relief work in Europe. Hine, we can recognize now, was one of the first photographers to produce effective picture essays, groups of photographs designed to tell a story in themselves with a minimum of caption material.

Riis's work as reporter with pencil and camera brought about housing reforms and an improved lot for the denizens of New York slums. He said he used the camera to show "as no mere description could, the misery and vice" that other New Yorkers were unaware of or found it convenient to ignore.

Hine and Riis would, in modern terminology, be called "documentary" photographers. The photographic career of another American of approximately the same era took a different slant. He was Alfred Stieglitz, the patron saint of those who are primarily interested in photography as an art form. Stieglitz went to Berlin in 1881 to study engineering, but studied photography instead. He was determined to prove that photography could do things others said it could never do. He took a 24-hour exposure to get a picture in a Berlin cellar, and once photographed, developed, and printed a picture in 34 minutes, a remarkable performance in the 1880's. His photography instructor could see no point in the demonstration of speed, but Stieglitz envisioned applications in journalism. When he returned to America, Stieglitz formed the rallying point for those who sought recognition for photography as an art form. Stieglitz, if he must be classified, would be called a "pictorialist"; his major interest certainly was not news photography. But the camera reporter today can learn much from a study of Stieglitz's pictures. They consistently demonstrate his brilliant technique, but that technique was used only to carry the message in a Stieglitz photograph. His pictures also show that he had the ability to see a picture and perform the necessary acts to record it almost simultaneously, an ability that can be invaluable to a news photographer. And Stieglitz, probably more than any other single person, brought public recognition of photography as a graphic art in its own right, not as a substitute for painting.

Cameras, Big and Little

Big cameras were standard in news photography during the early decades of the twentieth century. A favorite was the Graflex, first offered in two sizes in 1902: one producing a 4-inch-by-5-inch negative, and the other, and bigger camera, a 5 × 7 negative. From 1907 to 1923, the Press Graflex, a 5 × 7 camera, was the most widely used in news work. This camera used glass plates but could also use the sheet or cut film which was introduced about 1915. The Speed Graphic, somewhat more versatile and more convenient to operate, was introduced in 1912 and eventually succeeded the Graflex as the camera carried by most newspaper photographers. Both are products of an American firm, Graflex, Inc., which estimated a few years ago that 94 per cent of the working press photographers were using Speed Graphics.

But early in the 1920's a new kind of camera appeared which was to have a profound influence on news photography. Designs were perfected for small, compact cameras that could easily be held in the palm of one hand and lenses were produced for these "miniature" or "candid" cameras with greatly increased light-gathering power. Using one of these cameras fitted with a "fast" lens, a photographer could operate inconspicuously and in unfavorable light. Pioneers with the miniature cameras were Erich Salomon and Paul Wolff, who demonstrated that the miniature was not a substitute for the larger cameras but an instrument that greatly widened the field of photography.

The example set by Salomon and Wolff in intelligent use of the 35mm camera went largely unheeded by thousands of amateurs, who rushed to join the "minicam" craze and in their concentration on trying to set new standards of purely technical performance became largely a public nuisance. But the real value of the small camera was not lost in the hands of professionals like Alfred Eisenstadt who covered the Ethiopian War and advanced photojournalism with his excellent picture stories, Peter Stackpole who gave us the story of the building of the Golden Gate Bridge as the workmen saw it, Thomas McEvoy who pictured President Franklin D. Roosevelt at work, and Henri Cartier-Bresson who forcefully demonstrated that photography with the 35mm camera was not a matter of accident but the result of deliberate composition.

Documentary Photography

The depression years of the 1930's saw the rise to dominance of the documentary photographer who attempted to picture and interpret social problems. This approach had been used before, notably by Hine and Riis, but never so extensively as in the 1930's. The federal government's Rural Resettlement Administration under Roy E. Stryker hired photographers to report depression conditions. Among the first hired were Walker Evans, whose photographs of the South's land, homes, and sharecroppers show remarkable dignity in the midst of squalid poverty; and Dorothea Lange, who specialized in the problem of the migratory worker.

The documentary movement has been criticized for its concentration on human misery. For the second- and third-rank photographers who followed the leaders and then got lost, never finding their way back, this criticism is valid. Eventually the movement was dubbed, the "ashcan school of photography." But the work of the great documentary photographers was impressive for its sensitivity, imagination, and basic dignity. And they contributed significantly to photography's progress since collections of pictures of this period demonstrate the independence of the photographer. His pictures need not be mere illustrations of text; pictures can tell an equal part, even a major part, of the story.*

The "*f*/64 School"

Various photographic "movements" have periodically swept the country—pictorialism, abstraction, documentary—and have made varying contributions. One other which the photojournalism student should be aware of is the so-called "*f*/64 school," largely inspired by the work of Edward Weston. Weston advocated careful, studied work that includes previsualizing the finished print before the negative is exposed. His photographs are characterized by remarkable definition, clear-cut form and texture, and extreme depth of field. He urged photographers to make use of the fact that the camera sees more than the eye. There are valuable lessons for the news photographer in each Weston photograph.

If there is a dominant school or trend in the post-World War II period it must be reportorial photography. The influence of *Life* and *Look* magazines has spread not only to other publications, including newspapers, but through the ranks of amateur photographers. The dramatic success of the news picture magazines before the war ushered in a new era of emphasis on not just photos but on photojournalism. The photographic coverage of the war greatly reinforced the trend. The effectiveness of photography as a universal language has never been better demonstrated than by the pictures which cameramen, both civilian and military, sent back from the battle zones of land, sea, and air from 1939 to 1946.

* See Archibald MacLeish, *Land of the Free*, Harcourt, Brace and Company, New York, 1938; Dorothea Lange and Paul Schuster Taylor, *An American Exodus, A Record of Human Erosion*, Reynal and Hitchcock, New York, 1939; Erskine Caldwell and Margaret Bourke-White, *You Have Seen Their Faces*, Modern Age Books Inc., New York, 1937. These books provide the most powerful commentary available on aspects of the Great Depression.

Photographers today are looking for the storytelling shot, or series of shots that can be arranged in a picture story or picture essay. This is a logical development in the history of photography as man seeks new ways of effective communication in a society of increasing complexity. Tremendous technical developments—electronic flash, ultra fast lenses and films, new developers, improved color processes—have coincided closely with the emphasis on pictorial reporting. The photojournalist fuses the latest technical achievements with the lessons of photography's past to advance the evolution of an increasingly effective communication medium. In the words of Margaret Bourke-White, *Life* staff photographer, "The responsibility of the photographer is greater now than it has ever been. The little black box with a hole in it . . . has become the chief recorder of history."

iii

The Photojournalist's Cameras

In the 1950's many newspaper photographers found they were being met by skepticism as they stepped out of the crowd to take pictures on a spot news or feature assignment. This skepticism was born not of any new mistrust of photographers or of any change in the physical appearance of the photographers. It stemmed rather from the cameras they carried. In the early years of the 1950's many press photographers began leaving the bulky, nine-pound Speed Graphics on the darkroom shelf and they carried instead light twin-lens reflex cameras or miniature (35mm) cameras. (Weight was only a minor factor, as we shall see very shortly, in this break with what had become almost a tradition.) The public was accustomed to seeing press photographers with the larger cameras which, in the minds of many, were "press cameras." In simple truth, there is no such thing as a press camera; there are only press photographers who must be versatile enough to use whatever equipment is available to get the most effective, story-telling picture.

Today's equipment and techniques leave little justification for the old-line 4 × 5, stand-'em-against-the-wall school of news photography. Today's ultra-fast films and lighting and developing know-how have greatly increased the versatility of the still popular 4 × 5 camera. And with the twin-lens reflex or the 35mm, the photographer can extend his range with ease. With today's equipment, any picture worth taking can be taken.

It's important to have the proper equipment and to use it properly, but that all adds up to only a means to an end, not the end itself. The cabinet maker's skill with his tools is a fit subject for admiration, but in final analysis he is judged by the product, not by the method of production. The photographer who is seeking Alfred Eisenstadt quality in his pictures is headed for disappointment if he thinks the 35mm camera has a magic formula built in alongside the rangefinder. Some hard work at developing understanding, imagination, and perceptiveness will do more than a spree of buying many cameras and a bagful of accessories.

Nevertheless, the talent of a journalistically trained perceptive photographer with imagination will be wasted unless he knows how to get his ideas on film. To do this, he must have considerable knowledge of tools and technique. He must know the potentialities of his camera. There is no universal camera, but one of the expensive cameras commonly used in journalism can achieve tremendous flexibility if used with know-how. No one has yet developed a camera with a built-in mechanical brain for solving all problems. If the photographer has two or more cameras available, he must know which one will produce the best results on a given assignment. If he has only one camera for all assignments, he must know how to use that one tool for the same end: the best possible results. The photographer with a half-dozen cameras to choose from is in an enviable position, but the fellow that must rely entirely on the old workhorse, the 4 × 5, can still do an excellent job of camera reporting.

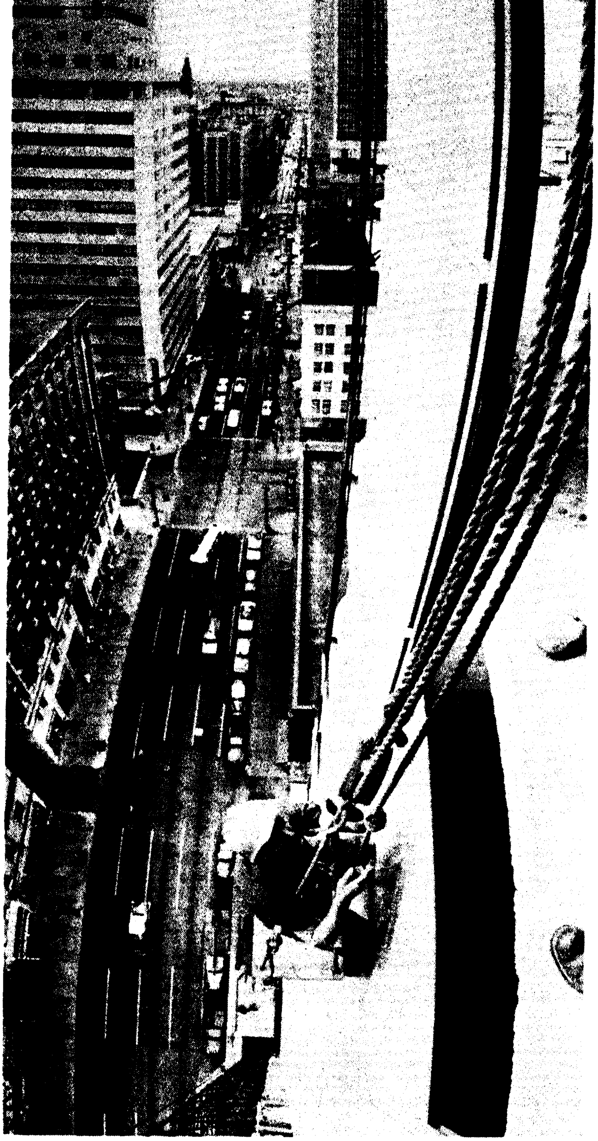
What Is a Camera?

Taking a picture is basically a simple process. There are really only two essentials: a device for projecting the image, the lens, and a device for recording that image, the film. Build a box that is light-tight, except for a hole at one end in which a lens is mounted, place a ground or opal glass at the other end and you have the *camera obscura* of the sixteenth century. Add at the end opposite the lens a device to hold film and you have, essentially, the twentieth century's box camera. The box camera with its few refinements—a viewfinder to make it easy to aim the camera, a shutter to make it easy to let the light through the lens for a predetermined amount of time, and a bit of chrome trim to satisfy our esthetic sense—is a very efficient device. It needs no apology. It can and has taken acceptable news photographs, but is not used regularly by news photographers. The photojournalist needs a camera of greater versatility, a camera that:

Will accept film of a number of different types.
Can be quickly and accurately focused for anything from closeups to extreme distance shots.
Takes lenses with diaphragms adjustable over a wide range.
Has shutter speeds from one second up to at least 1/400 of a second.
Can be accurately and conveniently synchronized with flash.
Accepts, if possible, a number of different lenses.

Just as there is no universal camera—a camera that is all things to all cameramen—so there is no universal press camera. The cameras most frequently used in press photography can be divided into three basic types, based on the size of the negative they normally produce: the 4 × 5, the 120 (2¼ × 2¼), and the 35mm.

Picture-taking is picture-taking, whether you are using a box camera or an imposing 4 × 5 Super Graphic or Linhof, but the photographer's techniques, from his approach to the picture subject, through his method of exposing and developing the film, to his system of making the print will be affected to a considerable degree by the kind of camera he uses. And the kind of camera is very largely controlled by the dimensions of the negative. The negative size is a major factor but not an all-



Dean Conger, formerly *The Denver Post*

Extreme depth of field and wide angle of view of the Panon camera, a specialty tool, is illustrated in this picture, one of the pictures which won for Dean Conger the title, "Newspaper Photographer of the Year," in 1959 shortly before he joined the staff of *The National Geographic Magazine*.

controlling one. Photography, unfortunately, or perhaps fortunately, is not that precise.

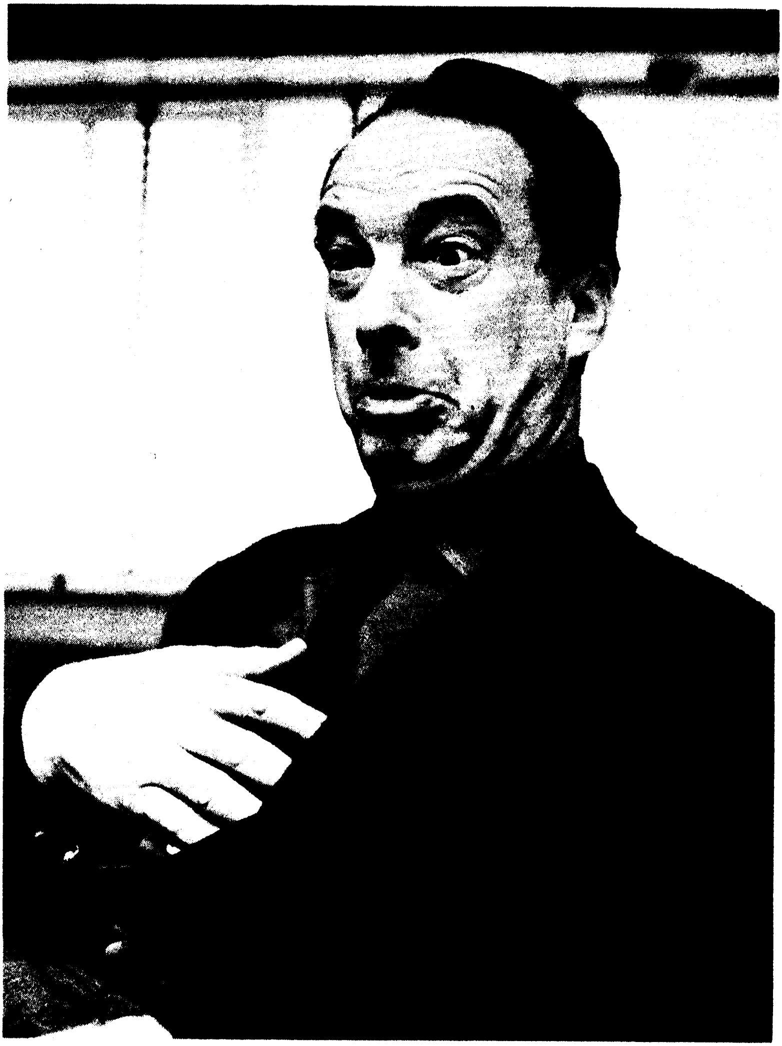
The 4 × 5

Although there is really no such thing as a "press camera," the term has been frequently applied to the camera that takes film measuring four inches by five inches, or cameras of similar design that use smaller film. Almost synonymous with the term press camera for three decades has been the name Speed Graphic, which is one type of camera made in the 4 × 5 size. But there are others that use 4 × 5 film, the Linhof and Busch Pressman, to name two. We are concerned here with the "4 × 5 system of photography" rather than with the merits of any particular camera.

The advantages of the 4 × 5 system of photography are impressive.

The relatively large negative is easy to handle during film processing and print making. Most newspaper photo labs have been partial to the 4 × 5 negative because it can be processed rapidly when a deadline leaves only minutes before the print must be in the hands of the engraver. On many metropolitan newspapers this advantage has now been largely nullified by more efficient methods of handling smaller films.

Printing by projection or enlarging is standard procedure on newspapers. The most commonly used print size is 8 × 10. The 4 × 5 negative requires a relatively small amount of enlargement: its dimensions need only be doubled for an 8 × 10 print. The 4 × 5, thus, takes advantage of an inexorable darkroom "law"; the greater the enlargement the less the chance of retaining ideal image quality, other factors being equal. Photographers seeking maximum image quality in the finished print generally prefer a large negative, often using a camera that takes 8 × 10 sheet film. But the 8 × 10 camera is rarely practical in news work.



Julianne Baker Warren, *The Cincinnati Post and Times-Star*

The large format camera can be used for informal portraiture, even for candids. This picture of Victor Borge was taken with a 4 × 5 Speed Graphic with bounce flash (No. 5 flashbulb); film was Royal Pan; exposure, 1/50th of a second at *f*/16.

Although normally used with single sheets of film which are loaded two to a holder (or six in the Speed Graphic's Grafmatic film holder), the 4 × 5 camera can be adapted for using film pack, glass plates, roll film, or the Polaroid Land "picture-in-a-minute" film.

Lenses are easily interchanged on the 4 × 5 camera and many models offer a choice of two shutters: the between-the-lens front shutter and the focal plane shutter.

The 4 × 5 offers a movable front. The lens can be raised, shifted right or left, and tilted. Some even permit adjustments at the film plane. These movements allow the photographer to control the position of the image on the negative and to control the focus in depth.

The 4 × 5 camera has a ground glass for critical focusing and it has double-extension bellows for extreme closeups. Double-extension simply means the pleated bellows can be extended to twice the focal length of the normal lens used on the camera. This means the bellows on a 4 × 5 camera will extend to a point where the lens is approximately 12 inches from the film. With the lens positioned at a distance from the film equal to twice the focal length, the image on the film will be life-size, or stated another way, the size relationship between object in front of the lens and image behind it will be 1:1.

And the 4 × 5 camera is rugged; it can take the knocks that often go with news work.

All this adds up to great versatility. The camera can be used for studio portraits, for fast action sports, for scenics, for architecture, for copying, as well as for the general run of routine assignments.

What are its disadvantages? Primarily size and weight.

But also, because of the large negative, fast lenses—ones that will permit picture-taking at low light levels—are impractical. However, it is possible to take existing light photographs with a 4 × 5 camera; it's just more difficult than with smaller cameras.

Resting the camera on a tripod, or on any other firm support if a tripod is not available, will make it possible to use the 4 × 5 at slow shutter speeds without having camera movement spoil the image. If there is unwanted subject movement, the slow shutter speed may mean failure. In emergencies the 4 × 5 photographer can even squeeze off shots while holding the camera in his lap. With the ultra-fast films available today, pictures are being shot hand-held with 4 × 5 cameras at 1/25 and even 1/10 of a second. It takes a bit of practice.

Obviously, too, the 4 × 5 is more conspicuous and more difficult to manipulate than smaller cameras and thus much less adaptable to candid photography even if the light level is such that the relatively slow lens is no handicap.

The 120

The camera that gives us negatives 2¼ inches square is something of a compromise between the extremes of the 4 × 5 and the 35mm. It offers in modified form some of the advantages of both the larger and the smaller cameras but at the same time is the basis for its own system of photography. It is lighter, more compact, easier to handle than the 4 × 5 and the negative size is significantly larger than the 35mm. While by no means a universal camera, it has been called, with justification, a general purpose camera. Generally accepted as the prototype in this class is the Rolleiflex, manufactured by the German firm of Franke and Heidecke since the late 1920's. But there are many others. Most of them, like the Rolleiflex, are twin-lens reflex cameras, although there are exceptions, like the Hasselblad, which have a single lens.

The reflex camera involves a simple arrangement with a mirror that reflects the image formed by the lens upward to a ground glass at the top of the camera where the photographer can study it for focusing and viewfinding. In the case of the single-lens reflex this mirror, set at a 45-degree angle directly behind the lens, must be whipped up out of the way at the moment of exposure so that the image can then be projected directly back to the film. Single-lens reflex cameras are equipped with focal plane shutters (slotted curtains immediately in front of the film). The twin-lens reflex has one lens for focusing and viewfinding and a second lens immediately below which actually takes the picture. The two lenses are mounted together so that when one is in focus, the other must be also. With the twin-lens camera the photographer views the subject continuously: before, during, and after exposure. With the single-lens reflex his ground glass view is blocked off at the moment of exposure. Twin-lens reflex cameras come equipped with front (between-the-lens) leaf-type shutters since the photographer does not have to look through the taking lens. The aperture (*f* number) of the taking lens is always at full aperture for the brightest possible ground glass image.

The twin-lens reflex offers enough advantages to make it the first choice for some news assignments and a few news photographers prefer to work with it almost exclusively.

The negative size, approximately one-half that of the 4 × 5, is big enough to offer good image quality for enlargements and the 120-size roll film used in these cameras allows 12 exposures on each roll. This means economy when the cost is figured on a per shot basis and it also means the photographer can take more shots in less time than he can with the 4 × 5. Both the negatives and the contact prints are large enough for convenient study and selection of the best shots for enlarging.

The 120 camera usually comes equipped with a lens one stop or more faster than the 4 × 5 camera's normal lens. This means a better chance for existing light shots. Some twin-lens reflex cameras come with an *f*/2.8 taking lens, adequate for a great many indoor, existing light shots when coupled with fast film.

The ground glass of the 120 camera is an aid to precise, quick composition. It makes visualization of the finished print a fairly simple matter.

This camera is lighter and smaller than the 4 × 5 and thus gives the photographer greater mobility. It can be operated faster than the bigger camera and is considerably less conspicuous, an aid in candid photography. The camera can be held directly overhead while the operator looks up at the ground glass to shoot over heads in a crowd, or for candids, he can shoot at right angles to the direction in which he is facing.

The 120 is excellent for informal portraiture, for fashion news, and ideal for pictures of children since it makes it easy to get down to the child's level (physically)—a must in child photography—and the small, maneuverable camera helps catch the child's spontaneity and exuberance.

These cameras, too are rugged. But, like the 4 × 5, the 120 system of photography has its disadvantages.

Some photographers consider the square format of the negative a disadvantage. Square or nearly square pictures are sometimes used in the Sunday magazine sections of newspapers, but rarely in the regular news columns. However, it should be said that the practiced twin-lens reflex operator takes advantage of his 2¼ × 2¼ ground glass to determine quickly whether a vertical or a horizontal format best suits the subject. Cropping to fit his decision can be done during enlarging.

In some situations the waist-level viewfinding with the reflex can be a disadvantage—but probably in as many other situations it is an advantage. And in any case the better models of the 120 cameras offer an eye-level viewfinder for use when preferred.

There are no tilts or swings on this camera to adjust for image distortions.

The lens is faster than that of the 4 × 5, but significantly slower than lenses available with 35mm cameras. The lens that comes with almost all 120 cameras is there to stay—no interchangeability. However, lens attachments are available for extreme closeups. (Exceptions to this: the twin-lens Mamiyaflex and the single-lens cameras such as the Hasselblad feature lens interchangeability.)

The 35

Volumes have been written about all three of the systems of photography we are considering in this chapter, but probably the greatest collection of material has been published on the 35mm system. The 35mm or miniature camera, which looks like a toy alongside the massive 4 × 5, has sometimes been regarded as a late-comer in press photography. It's true that large numbers of newspaper photographers have turned to the 35 only since World War II; but some photojournalists, particularly those in the magazine field, were using this camera a decade, even two decades, earlier. Around 1930 newspaper photographers experimented with the 35, attracted by its ability to produce negatives under difficult lighting conditions. But three factors worked against the 35 then: the grain in enlargements, the impracticality of fast processing to meet deadlines, and the introduction of the flashbulb which seemed to obviate the need for fast lenses. Since World War II newspaper photographers have returned to the 35 because speed processing is now practical with film and developers that keep grain well within acceptable limits. In addition, faster films and a desire for realism have, to a considerable extent, deposed the flashbulb and electronic flash.

The first 35mm camera was the German-made Leica, introduced at the Leipsig Fair in 1925. It was originally designed as a still camera for testing 35mm movie film. Since then, 35mm cameras have popped up like spots on a negative in a dusty darkroom. The camera buyer faces no wider choice—and no greater confusion—than in the miniature camera field. For newspaper work a 35 with interchangeable lenses is a must, and this limits the choice somewhat. The miniatures most frequently dangling from straps over the shoulders of photojournalists are Leicas, Nikons, Contaxes, Retinas, and Exaktas. The 35mm camera may be a reflex, so the photographer focuses and viewfinds directly through the taking lens, or it may be a coupled-rangefinder design, with the lens focusing automatically as the rangefinder is operated. Most of the latest models of the rangefinder design make a single window serve both for rangefinding and viewfinding.

The toy-like appearance of the 35 is an unintended disguise for a tremendously versatile camera. Its advantages are many.

A wide range of black-and-white and color film materials is available in the 35mm size and it is the most economical of all on a per picture basis. The number of exposures range from 20 to 36 per roll—at the maximum three times as many shots as are available to the man with a 120 camera. This large negative capacity gives a shooting freedom that is not matched by either of the other two systems.

The best of the 35 cameras can be operated very fast. (Special accessories are available for some to speed up the operation for sequence photography.) Couple this with the 36 exposures available and the photographer has a better chance of getting a series of related action shots. In addition, the small camera permits maximum mobility with minimum commotion. With the 35, the photographer can explore viewpoints, angles, distances quickly and easily. If he is after realism, the 35 is likely to be his best tool since it allows him to interfere as little as possible with the story he is reporting.

The 35mm offers the fastest lenses available (*f*/1.5 is not uncommon) and thus the greatest chance for success with poor light when flash is prohibited or undesirable. And the 35 offers flexibility through many accessories, including interchangeable lenses ranging from 21mm (extreme wide angle) to 1000mm (extreme telephoto). The normal lens (around 50mm) of the 35 gives tremendous depth of field, and with a wide-angle lens, the photographer can move in close for unusual compositions gaining more depth of field (the depth in which all objects appear to be in focus). With a longer than normal lens, he can work far enough away to go unnoticed and still get closeup effects.

The 35mm, then, with its interchangeable lenses and many accessories, can handle routine news assignments, informal portraiture, fast action sports, society reporting, and fashion news, and it is tops for candids and existing light shots.

Any list of disadvantages of the 35mm camera usually starts with a statement that the small film is not as easy to process as 4 × 5 or 120 film and carelessness brings heavier penalties since grain, scratches, pinholes and dust on the negative constitute a greater hazard because of the greater enlargement required.

Speed processing of 35 is possible today. A print from 4 × 5 might still be out of the darkroom before one from 35, but in newspaper darkrooms equipped to handle the 35 film rapidly the difference, if any, is so small it is rarely of importance. And when several prints is the objective, an experienced worker with 35 film can be out of the darkroom first in a race with another equally experienced photographer working with 4 × 5 negatives.

Perhaps a disadvantage of the 35 is that it has greater need for experienced hands than do larger cameras. Beginning news photographers often fail to move in close enough to the subject to fill the negative frame. With the 4 × 5 this will ordinarily not make a serious difference. But with the 35 this error may take the photographer uncomfortably close to failure. Enlarging the full 35mm negative is magnification enough to cope with, but if you must print only a small section of that negative the resulting loss of sharpness may be far too great. The 35 camera requires careful handling to get maximum sharpness in the image even when the full frame is utilized; slight errors in focus or slight camera movements will be greatly magnified in the print.

Also, the photographer with the 35mm—not always a beginner—may become overly enamored with existing light technique and rely too heavily on the fast lens. Resulting prints are often too muddy and vague for newspaper reproduction.

One final note: the miniature camera cannot match the fine detail of prints from larger cameras (it's not usually the best choice for landscape photography) and there are no swings and shifts at the lens or focal plane.

The Small Camera Trend

Veterans in photojournalism have predicted that the 35mm camera will eventually become the workhorse of newspaper photography. Harold Blumenfeld, United Press Newspictures (now United Press International) editor, told a writer for *Editor and Publisher,* the newspaper trade magazine, in 1956: "I hope that before several years are out at least 75 per cent of our work will be done with the 35mm." In the spring of that year staff photographers of United Press had used 35mm cameras and Rolleis for 90 per cent of their pictures of spring training at the major league baseball camps. Later in the same year, the same picture service used 35mm predominantly in covering the national political conventions. In the hands of such photographers as Art Rickerby, 35mm cameras equipped with long lenses recorded intimate, unposed views of leading convention personalities. In 1958, the same newspicture service used 35mm cameras to cover the baseball World Series.

Other newspicture services and newspapers have also switched to the smaller cameras. The Associated Press in 1958 converted to Mamiyaflex cameras with lenses ranging from an *f*/2.8 80mm to an *f*/4.5 180mm and Hasselblads with lenses ranging from 80mm to 800mm. Photographers on individual newspapers such as the *Miami Herald, Atlanta Constitution, London* (Ontario) *Free Press, Milwaukee Journal, Denver Post, New York Times,* and *New York Daily Mirror* have also adopted the 120 and 35 cameras. Nor is the trend confined to the large metropolitan papers. Small newspapers, even weeklies, are using the twin-lens reflex and the 35mm, with, they report, considerable savings in film costs.

From a practical viewpoint the reasons for the trend are simple. Faster films and improved developers for the small size film have made the small camera competitive in the newspaper field. In addition, the smaller camera encourages the photographer to adopt a fresh approach to camera reporting. This, however, is not one of the automatic features listed in the advertisements for 120 and 35 cameras; the skill and the perceptiveness of the photographer is always more important than any camera tool he may be using.

Why did the Associated Press switch to small cameras? The reasons given by F. A. Resch, general newsphoto editor, included:

> *To get better pictures.* The small camera program has taken advantage of lenses with much greater depth of field.
>
> *To provide equipment of all kinds that is much lighter and more portable than the old units.* This equipment permits the photographer to get better pictures from more advantageous positions. It enables him to shoot more often when necessary.
>
> *To cut costs.* AP has reduced its film expense and has eliminated what formerly was continuing cost for repair and replacement of 4 × 5 and 5 × 7 film holders and magazines.

And, finally, some testimony from individual photographers: Earl Seubert of the *Minneapolis Tribune* won the 1958 title of Newspaper Photographer of the Year with pictures taken with a 35mm camera. Bernie Aumuller of the *New York Daily Mirror,* long considered one of the finest news photographers in Manhattan, especially on features, said:

> Once the adjustments are made and the darkroom has the hang of it, 35's are the cameras to use. I prefer them over Rolleis even. And I'd say the ideal way to cover an assignment is to have two 35's along, one equipped with a wide-angle lens, the other with a telephoto lens.
>
> Then, you're ready for anything. You have half a dozen rolls with you and you can cover a war.
>
> Oh, there are some assignments, such as features involving composition problems, where I still prefer the Speed Graphic, but aside from these—and especially for candid shots—I go for the 35's.

If I had my choice in the matter, I would work 75 per cent with 35's and 25 per cent with the Graphic.

It is doubtful if the reliable 4 × 5 will ever be completely supplanted in newspaper work. There will always be assignments for which the large camera is eminently suited and many photographers still prefer it for all or most assignments. It appears that what is happening is a matter of shifting balance: the small camera is becoming the general purpose tool, while the 4 × 5 is becoming more of a specialty tool.

Other Cameras

The photo-reporting equipment available in a small newspaper shop may end with the 4 × 5. At the picture-conscious larger dailies, 4 × 5, 120, and 35 merely enumerate the most frequently used equipment. A wide variety of special cameras may be available. Among them are 5 × 7 Big Berthas (Graflex) with 28-inch or 36-inch lenses, used extensively for covering baseball and football because the photographer can sit high in the stands or atop the press box but get pictures that appear to have been taken only a few feet from the action. The Big Bertha is being displaced to some extent in the 35mm revolution, since sports action from the stands can be covered about as well today with a telephoto lens on a miniature camera.

Also commonly included in the equipment are 4 × 5 Graflexes with a variety of lenses, aerial cameras, view cameras (4 × 5, 5 × 7, and even 8 × 10), Polaroid Land cameras for pictures in a minute, cameras with spring or electrically driven motors for rapid sequence shooting, and perhaps one of the most specialized of all—a wide-angle camera that takes in 140 degrees or more in a single shot.

News photography equipment is likely to get more specialized and complicated rather than less so. Automation has appeared already in the camera field and more automatic features are

L. H. Whittaker Jr., *Quincy Patriot Ledger*

This closeup of Sir Anthony and Mrs. Eden was obtained despite police orders keeping photographers fifty feet away. "With a Nikon 35mm camera with three lenses (35mm, 50mm, and 105mm), it was a simple matter to change lenses for a closeup," the photographer reported. The picture was taken with the 105mm lens at 1/500 of a second at *f*/11 on Plus-X film (meter setting index: 200; see Chapter IV).

certain future developments. The future may bring electronic cameras with the photographer transmitting the image, without wires, to receiving equipment at the newspaper office. Regardless of what fabulous gadgets the electronic age may bring, the beginning news photographer will find it advisable to become intimately acquainted with the 4 × 5 and at least one of the smaller cameras, the 120 or the 35, before he tackles any of the various specialty tools.

If there is any one clue to success in handling any camera it is simply this: "Know your camera." Manipulating the camera's controls must be second nature. Newspaper editors don't hire gamblers for photographers; they expect a picture—and a good picture—from every assignment. Equipment ignorance is no excuse, and neither is equipment failure. Cameras must be kept clean and in perfect working order.

iv | *The Negative Story*

EVERY CAMERA REPORTER'S TRAINING must include indoctrination in the secrets of the darkroom. Just as the photographer must know what his camera can do, so must he know the capabilities and limitations of films, paper, and chemicals. Those who are satisfied with snapshot photography for the family album have little reason to get any closer to the darkroom than the corner drugstore. But there is a considerable body of knowledge separating the average family photo album from the photojournalism in picture-conscious newspapers.

Camera reporters do not always perform the entire process from tripping the shutter to drying the print. In magazine photojournalism the darkroom technician, or "inside man," is universal, and on newspapers the inside man is common on larger dailies but almost never employed by small dailies or weeklies. Wherever employed, these darkroom specialists do all or much of the film processing and print-making and the best of them can perform near miracles in rescuing poor negatives. But professional photojournalists say darkroom experience is a "must" for the cameraman, even though he may turn his film over to a specialist for processing. The newsman must feel at home in a darkroom before he can feel at ease as a camera reporter.

A Lot to Learn

Weighty tomes have been written about the chemistry of photography, the story of films, and their development. One of the first things every photographer should learn is that chemistry is involved, not alchemy. It is pure fantasy to believe that somewhere there is a special film, a secret developer, or a magic paper that will convert today's negative into next year's Pulitzer prize. The bewildering array of black-and-white films and developers available today offers no single answer to the perfect negative. This profusion, in fact, is in some ways confusion; it is difficult to make a choice.

"Keep it simple" is the best advice for the beginning news photographer. There is a lot to learn about exposure and development and the very important relationship between the two. The way to learn is to concentrate in the beginning on one film and one developer. In addition to learning about exposure and development, photographers will accumulate, through such concentration or standardization, essential knowledge about such mysteries as contrast, gradation, grain, resolution, and film speeds. However, the beginner may find a ration of one-film, one-developer unpalatable; it seems pretty harsh in a world of photographic plenty. He might, then, select three different films and perhaps two developers, enough to slacken the thirst for variety, but not so many as to lead to confusion.

Be Positive about the Negative

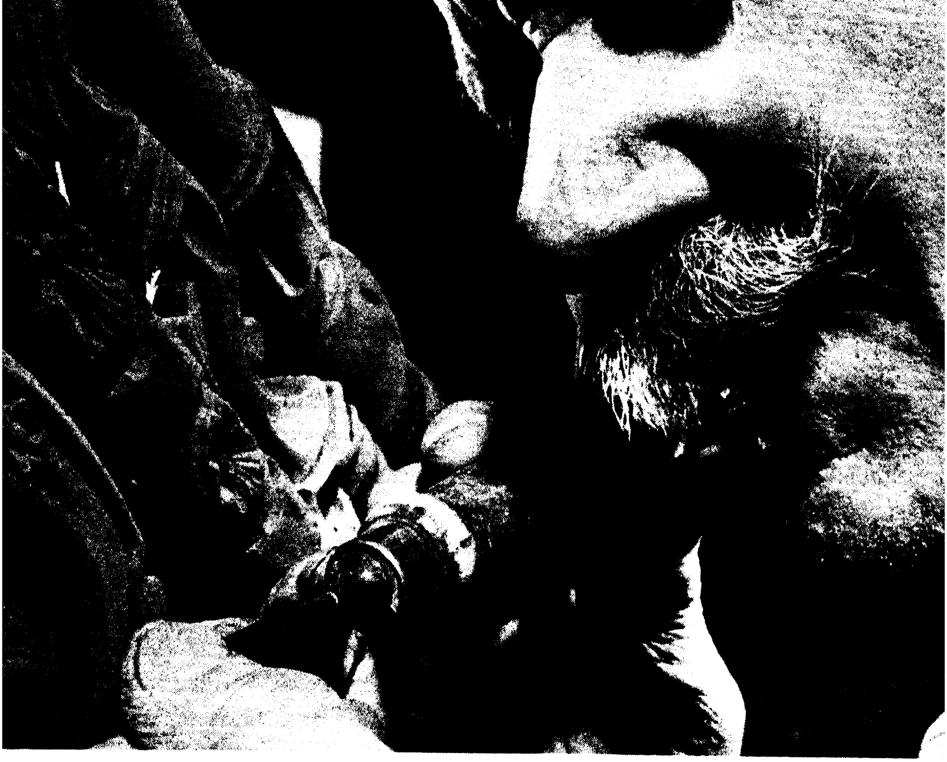
If there is an Aladdin's lamp that will open the door to success in the darkroom it lies in the negative. It is sometimes a temptation to hurry through film development carelessly so that the much more fascinating procedure of printing can begin. Yielding to this temptation is sometimes rationalized by the theory that printing manipulations can nullify negative defects. Overreliance on this theory leads to more anxious struggle and more wasted paper than any other factor, except perhaps a sloppy darkroom. The objective is a normal negative that will print by standardized procedure. What the words "normal" and "standardized" represent depends upon the individual photographer, his purpose, and his equipment. Books, instruction sheets, manuals can supply only a part, perhaps one-half, of the knowledge needed about films. The rest must come from experience. A mental reference file of photographic know-how is much more valuable than all the technical data in books and instruction sheets. While the personal data file is accumulating, the photographer follows the recommendations of the film and developer manufacturers. These recommendations, based on thorough tests, are intended for average conditions of use. Experience, mostly personal, plus some borrowed from others through such mediums as this book, will tell when and how to depart from the recommended procedure to compensate for non-average conditions or to achieve special effects.

And the wise photographer keeps it clean, the darkroom, that is. Nothing leads to frustration faster than dust and spilled chemicals. Dried chemicals pass into the air like dust and sooner or later some of these particles are going to land on film or paper.

The Miracle of Film

The key to the photographic process lies in millions of microscopic grains of silver halides placed in suspension in an extremely pure form of animal gelatin. The silver halides are so-called because they are compounds formed of silver and a halogen—one of a group of elements which form salts by direct union with metals. The halides of particular importance to photography are silver bromide, silver chloride, and silver iodide. The halide used in most film emulsions is silver bromide. The halides are light-sensitive, that is, light (a form of radiant energy) is absorbed by the halide and the absorbed energy produces a chemical or physical change within the halide.

The nature of this change is not completely understood. But we do know that silver halides are unstable and light apparently starts a process of decomposition which separates metallic silver



David Mathias, *The Denver Post*

The miracle of film: the fine deposit of silver in negative and paper emulsions can record such minute detail as whisker stubble on a man's chin and each individual hair of his moustache. The photographer's focus was needlesharp as he moved the camera in close for the high impact of the extreme closeup. Note, too, the excellent backlight without which the photograph would lack depth and form.

from the halogen (chlorine, bromine, or iodine). The gelatin captures the free halogen and prevents it from reuniting with the freed silver. The tiny grains of silver are jet black and if deposited in enough quantity they will form the negative image, an image darkest where the subject was brightest. With photographic film light causes only a minute amount of decomposition, not enough when the camera shutter is open only a brief moment for the eye to see any darkening of the emulsion layer caused by accumulation of silver. Available evidence indicates that this extremely small amount of freed silver is the latent image which can be made visible through development—through extending the halide decomposition already initiated by light.

Film and the Colors of Light

Of the whole radiation spectrum our eyes are sensitive to only that small part we call light, ranging from blue, the shortest wave length of the visible spectrum, through increasing wave lengths to red. We can't "see" cosmic rays, gamma rays, X-rays, ultraviolet rays, infrared or heat rays, or the waves used in radio broadcasting. The silver bromide crystal normally has an even more limited sensitivity, absorbing only the blues at the short wave length end of the visible spectrum plus the invisible ultraviolet rays. This is apparently because the shorter wave lengths have greater frequency and thus greater energy. Silver bromide, and the other silver halides as well, are "blind" then to green and red.

But in news reporting with black-and-white photography film sensitive only to blue and ultraviolet light is unsatisfactory since it will record red as black, or at least as a deep shade of gray. Blue sensitive or "color blind" film is now supplied in only limited quantities for one purpose—copying.

A discovery in the 1870's pointed the way to silver halides with approximately the same sensitivity as the human eye. Remember the principle that radiant energy must be absorbed to bring about a photochemical change. A red dye will absorb green light (as well as blue), and a blue dye will absorb red light. These dyes, added to the emulsion, absorb the longer wave lengths of the visible spectrum, and in some way that is still largely a mystery, transfer this absorbed energy to the silver halide grains. So we now have films that are sensitive to ultraviolet, blue, and green (orthochromatic film) and others that are sensitive to ultraviolet, blue, green, and red (panchromatic film). Press photography requires panchromatic films.

Film Developing

For superior final results, in the print, the photographer begins at the beginning, with the negative. If he has expended great effort, perhaps even risked life or limb to get the pictures, he does not risk destruction of the results in the darkroom by failure to practice cleanliness or by ignoring details. Film development should be standardized as much as possible and the standards abandoned only for good reason, based on thorough pretesting.

There are three major factors in film development with which the photographer must be familiar and which he must be able to control. These are contrast, grain, and density. A normally exposed film, normally developed, should give a silver deposit of varying density, but with important detail in both shadows and highlights (tonal separation or local contrast in small areas of the negative), good range of contrast from the deepest shadow area to the strongest highlight, and small enough grain (individual clumps of metallic silver in the emulsion of the developed negative) so that a mottled appearance will not be easily apparent in the normal enlargement.

Development Factors

Important factors in development of film are temperature, time, and degree of agitation. Generally the ideal temperature for the developing solution is 68° F.[*] The time in the developer will vary with the film and developer being used. The degree of agitation will also vary, although a general recommendation is: agitate vigorously for the first 15 seconds after the film has been immersed, to knock off air bubbles on the surface of the film and to start uniform development. Then agitate once every minute for 10 to 15 seconds throughout the development period; 5 to 10 seconds every one-half minute in tank development of 35mm film. Agitation is extremely important. By-products of development have a tendency to cling to the emulsion, preventing fresh developer from getting in its licks.

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[*] Some consideration is being given to a proposal for a somewhat higher temperature standard. Temperatures a few degrees higher do no harm if development time is reduced a proper amount, very roughly 8 per cent for every two degrees.

After Development

A developer functions near top efficiency in an alkaline solution. To stop development we simply transfer the film to an acid solution, the stop bath. However, since the fixing (hypo) solutions normally available are acid, a stop bath is not essential with film, although desirable. A plain water rinse will suffice if it is not convenient to use an acid stop bath.

After the film has been rinsed in water or stop bath for about 10 seconds, it is taken directly to the fixing bath. During normal development only the silver halides struck by light have been reduced to metallic silver. Those halides which were not hit by light are still in the emulsion and are still light-sensitive. We must get them out of the emulsion or they will eventually darken under exposure to light and spoil the negative image. We can remove those unexposed and undeveloped silver halides with sodium thiosulphate, which photographers call hypo because its chemical name was once sodium hyposulphite. During fixation the hypo forms new and soluble compounds with the residual silver halides and they are thus removed from the emulsion. The only thing left is the image formed by the metallic silver.

Agitation is advisable during fixation as well as during development, though it need not be so carefully timed. Agitation for perhaps the first 30 seconds and then agitation for a few seconds occasionally during the remainder of the fixing period will suffice. This will greatly speed up fixing, since fresh hypo moves in to replace the partially exhausted solution near the surface of the film. The usual instructions read: fix films for twice clearing time (twice the time it takes to clear the milky appearance from the film). But press photographers often fudge a little, yank the film out as soon as it is cleared and return it to the hypo later if the negative is to be preserved.

Washing time for negatives is generally 30 minutes in running water, but the news photographer is often in a hurry, so he sometimes cuts this down to a quick flushing.* The negative image will last until the print is made from the wet negative and then it can be returned to the hypo if necessary and given a thorough washing after the deadline has been met. For printing with a wet negative, dip the film in a wetting agent (detergent), and drain off the excess water, or wipe the film gently with damp sponge or soft chamois. Then go to the enlarger.

Some Notes on Grain

Metallic silver deposited during development tends to form into clumps, and when these clumps get large enough for their shadow images to be visible in the print, we say we have grain. Important factors which affect grain include:

Speed of the film. The faster the film, the bigger the grain, other conditions remaining equal.

Exposure. Increased exposure will always increase negative granularity. This is probably the chief cause of excessive grain.

Development. Increasing the time of development at normal temperature (68 to 70 degrees) will increase the size of the silver grains. For minimum grain, which is especially important in small negatives, all solutions—developer, rinse or stop bath, and fixing bath—should be at the same temperature.

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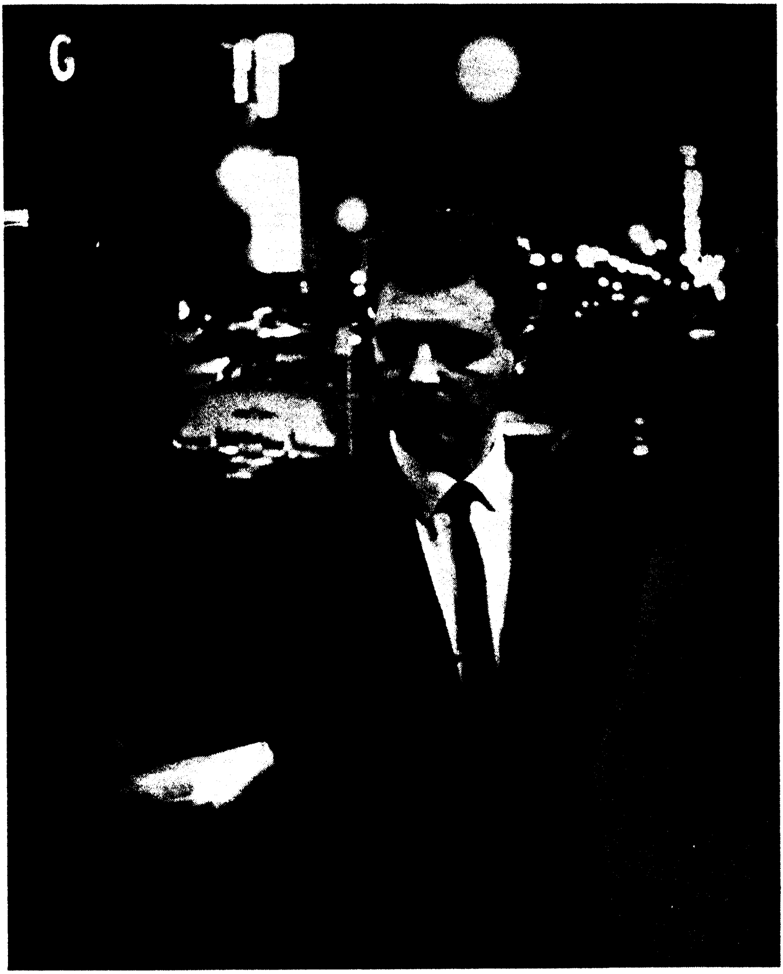
* With 35mm film, 30 to 60 seconds in hypo clearing agent is equivalent to 20 minutes washing time. Hypo clearing agent is in common use in newspaper photo labs and eliminates the need for time-consuming washing periods.



John Lee, formerly with *The Denver Post*

Getting the best out of film speed, the photographer shot for storytelling mood in this picture of a defeated candidate for mayor. Slow shutter speed meant that reporter's pad in foreground was blurred by movement.

Type of developer. For fine-grain results, use a fine-grain developer. For press work this usually does not mean the so-called ultra-fine-grain types: Ansco Finex-L, Kodak Microdol, and FR X-33 are examples. For prints for newspaper reproduction, more vigorous, less time-consuming developers will generally be more than satisfactory: Kodak D-23 and D-76 and Ethol UFG. These three will produce approximately normal emulsion speed, whereas the finer grain developers, in effect, reduce emulsion speed.

Basic Film Types

The photojournalist's choice of film for news assignments generally represents a compromise between emulsion speed and image quality. Sometimes his decision will favor speed; at other times, quality. If he wants the best combination of both, he's likely to select a film that is in itself a compromise. This gives us our clue to basic classification of films used in press photography. We can divide them into three groups:

Thin-emulsion films—low emulsion speed, relatively high contrast, limited exposure latitude, superior image quality. Examples: 35mm film, Kodak Panatomic-X, Adox KB-14 and KB-17, and Ilford Pan-F; 120 roll film, Kodak Panatomic-X, Adox R-14 and R-17, and Perutz Perpantic-18.

General-purpose films—medium emulsion speed, good contrast, good exposure latitude, excellent image quality. Examples: 35mm and roll film, Kodak Plus-X, Adox KB-21, Ansco Supreme, DuPont Superior 2, Ilford FP-3; sheet film, Kodak Super Panchro-Press Type B, and Ansco Superpan Press.

High-speed films—highest speed, lowest contrast, good exposure latitude, poorest (but still good) image quality. Examples: Kodak Tri-X, Royal Pan, and Royal-X Pan; Agfa Isopan Ultra and Isopan Record, Gevaert Gevapan 36, Ilford HP-3 and HP-S, Perutz Peronmia 25, DuPont Cronar Press, and Ansco Hypan.

Thin-Emulsion Films

Maximum image quality is the thin-emulsion film's reason for being. If press photographers could expect well illuminated, stationary subjects on every assignment, this would be the film to choose every time. But news assignments are rarely still lifes under carefully controlled studio lights. Even so, the low-speed film is a valuable and frequently used tool in the press photographer's kit since the trend toward the smaller size negative has put increased emphasis on image quality.

The superior image quality obtainable with slow-speed films is the result of two factors. The silver halides are suspended in an exceptionally thin layer of animal gelatin. This minimizes the effects of light scatter, or irradiation, within the emulsion layer. Light rays striking silver halides in the emulsion tend to bounce off the halides and dart sideways through the emulsion. In so doing they often strike another silver halide which otherwise would not have been struck by light and made developable. This scattering of the light causes small but nevertheless significant distortion of the image. Thin-emulsion films offer a minimum of opportunity for irradiation and as a result we get sharply defined image contours—or high acuteness. The second factor is the fine grain of low-speed films. Unusually small particles of silver halide are used in these films and as a result properly exposed and developed negatives appear to be almost grainless.

Some photographers have been heavily disappointed by the image quality of their pictures from thin-emulsion films. But this has not been the fault of the films. These slow-speed films have a narrow exposure and development latitude. With thin-emulsion film in the camera, the greatest danger is overexposure which destroys the high acutance and fine grain factors on which the superior image quality is based. Even with correct exposure, the advantage of the thin-emulsion film may be destroyed in development. Because of their thin emulsions, these films develop more rapidly than other types and even a small amount of overdevelopment may build up unwanted negative contrast. Underdevelopment, on the other hand, can be even more serious, since it may result in an unsharp image because thin films give their best results when every bit of exposed silver halide is developed.

Indisputably the best developers for the thin-emulsion films are the so-called compensating developers (two German imports, Neofin Blue for low-to-normal contrast, and Neofin Red for normal-to-high contrast, and one American product, F.R.'s X-22). These developers have no silver solvent to dissolve away part of the negative image. Virtually all fine-grain developers do contain some silver solvent. In a properly exposed and developed thin-emulsion negative there is no silver to be dissolved except needed sections of the image itself. Despite this fact, however, most press photographers are willing to settle for some loss of image silver to gain speed in development. They are using Kodak D-76 and Ethol UFG as thin-emulsion film developers.

General-Purpose Films

These are the films that strike closest to the middle ground in the ubiquitous compromise between speed and image quality. They come about as close as it is possible to get to an ideal combination of virtues; they come as close as we can get to general-purpose films; they are the best for standardizing on a one-film, one-developer combination; they are the most widely used. These films offer one major advantage: latitude. They have the widest tolerance for variations in exposure and development and will give the best results over a wide variety of lighting, contrast, and subject conditions. Most of these films will accept at least one full stop overexposure and about two stops underexposure (based on the pre-1960 ASA exposure indexes) without appreciable loss in image quality.

In addition, with proper handling, some of these films can be made to reach far down into the thin-emulsion's realm of image quality, and some can be pushed up into the preserve of the high-speed films. This great versatility of the medium-speed films makes them of extreme importance in press photography, when wide variations in shooting conditions must be met on the instant, without benefit of prolonged consultations with a light meter.

Their adaptability extends into the area of development as well. They give satisfactory results whether developed in fine-grain, general-purpose, or high-energy solutions.*

High-Speed Films

These are films coated with special purpose emulsions. The special purpose? To get a printable image even though conditions make it certain that only a relatively small amount of light will reach the film. These films are to be used, then, when the light level is exceptionally low, when fast action must be stopped without benefit of high light level, or when extreme depth of field is needed during an instantaneous exposure without a high light level.

High-speed films may be greatly underexposed (in terms of the ASA exposure index) but overexposure is likely to bring disaster in the form of gravel-like grain and loss of tonal separation in highlight and middle tone areas. Development must also be carefully controlled. High-speed films are more particular about their development bath than general-purpose films, although there are some fairly standard "soups," such as Kodak D-76 and D-23 and Ethol UFG, which will work well with most of them. In general, it does not make sense to use a fine-grain developer with a high-speed film since the two are not compatible. Fine-grain can usually be obtained only by a sacrifice of speed. If emulsion speed is the objective a developer must be used that retains that speed, does not destroy it. Overdevelopment of high-speed films is risky, although sometimes necessary. It is risky because of the grain problem. Attempting to underdevelop to reduce the grain in high-speed films is just as inadvisable because it will almost certainly result in a negative that is too flat.

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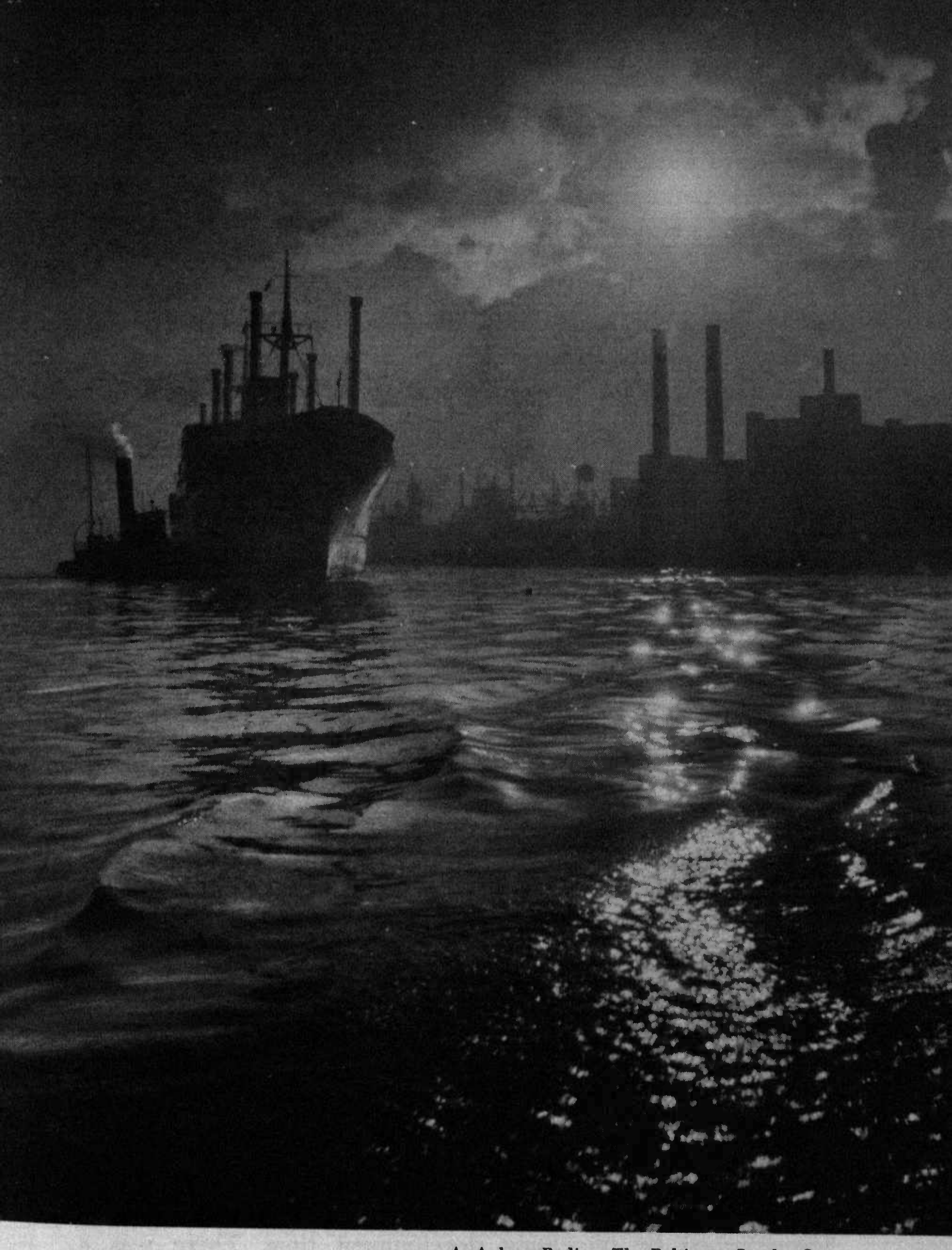
* A few press photographers, for example, are developing Kodak Plus-X in Eastman's Dektol, a developer designed for printing paper, with good results. The photographers mix one part Dektol stock solution with one part water, and develop for sixty seconds.

A Word about Film Speed

A film's speed is a number intended to express the film's sensitivity to light. The greater the film's sensitivity, the higher the speed number; the higher the speed number, the greater the film's ability to capture dimly lighted subjects in brief exposures.

In the United States, films are generally rated by the American Standards Association (ASA) methods. Prior to 1960, the sensitivity of film was determined by what was termed the "fractional gradient method." This involved calculations in the field of sensitometry using a density-log exposure curve for each film. Details of this method were given in a standard (PH 2.5–1954) published by the American Standards Association. The calculations resulted in a number which expressed the film's sensitivity to light in terms of relative speed, so that we could, for example, by simple reference to the speed numbers determine that film *X* was twice as fast as film *Y*. But the numbers that the film manufacturer published on data sheets packaged with his film were not "speed" numbers, but *exposure indexes.* An exposure index is a padded figure with a built-in safety factor designed to protect the photographer from failure through underexposure; it provides an exposure 2.5 times greater than the minimum needed for good quality under closely controlled conditions. This safety factor which made the exposure index different from the film speed was judged advisable because conditions of use vary widely in lighting, subject, camera, and photographers. With or without exposure meters, photographers make errors in lighting judgment. Nor are cameras infallible; true shutter speeds and true apertures may vary significantly from the marked figures on the lens housing. With true film speed an overexposure of four or even eight times would not be serious; the film latitude would take care of it. But even a small error in underexposure would very likely result in an unprintable negative. The safety factor, then, was devised to push picture-taking into what was called the "optimum exposure range," where sizable errors are possible in both underexposure and overexposure without resulting in disappointment.



A. Aubrey Bodine, *The Baltimore Sunday Sun*

"Misty Harbor." Careful exposure and development of the negative made this print possible. Note the superb composition in this picture by one of the most creative newspaper photographers in America, a man who has mastered the technique of combining pictorialism with meaning in a single picture. One of his most important "tools" is his astounding knowledge of light and of how to control it for his communicative purpose.

Safety vs. Image Quality

Photographers found they would gain in both film speed and image quality if they were willing—and able—to sacrifice all or part of the safety margin built into the film exposure index. In practice this simply amounted to pretending, for example, that Kodak Plus-X, with an ASA exposure index of 80, actually had an index of 160.

Many photographers adopted this practice. They found if they combined their experience with the accurate and highly efficient shutters and coated lenses in late-model cameras and if they used exposure meters or otherwise carefully estimated exposures, dropping the safety factor was no great hazard.

But why sacrifice this safety factor? There are some very good reasons to do so:

Less overall negative density, and thus a negative that will print faster and easier.

Less grain. Grain is directly related to density, and the relationship is closest in the ultra-high-speed films.

Less irradiation. The more the exposure, the more chance light rays, bouncing off grains of silver halide, have to plow through the emulsion and cause a blurring of the image.

Less loss of image quality in enlargements. It takes extreme overexposure to cause noticeable loss of quality in the contact print; but rarely are contact prints used in press photography. Loss of image quality is readily apparent in enlargements made from overexposed negatives.

"Pushing" the Film

Most films can be forced to produce an image even though the extent of underexposure exceeds the safety factor. This is accomplished by increasing development time. There was a period in the 1950's when "pushing" film speeds through "forced" (extended) development seemed to be almost a photographic movement in itself. Many photographers appeared intent upon securing an image under the worst possible lighting conditions, and the devil take image quality. Then, new emulsions that offered excellent or good image quality *and* high or ultra-high speed all but destroyed the forced development school overnight. Sanity returned, and with it new concentration on image quality.

Two suggestions for the serious photographer resulted from Eastman Kodak experiments:

> *First.* He should determine the proper exposure level for his own equipment and his method of reading light. This can be done simply by running some carefully exposed and processed exposure tests on the types of scenes he generally photographs.
>
> *Second.* He should stick to normal development except in those rare instances when an image must be salvaged in spite of very severe underexposure. This means, incidentally, that he should guard against unintentional forcing of his development. Solutions of improper strength or temperature, or overly vigorous agitation can cause forced development and a consequent reduction in photographic quality.*

The formula is a simple one: correct exposure plus normal development equals best print quality.

Forced development may rescue a grossly underexposed negative, but various tests indicate the limit of forced development is about twice normal time. Anything longer usually does nothing to improve speed and makes the negative worse because of excessive fog degrading delicate shadow detail.

New Speed Values

In 1960 the American Standards Association adopted a new method for determining the speed of black-and-white films.†

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* "Photographic Quality vs. Forced Film Speeds," a pamphlet published by Eastman Kodak Company, Rochester, N.Y., 1959.

† This is described in detail in one of a series of photographic standards published by the American Standards Association, 10 East 40th Street, New York 16, N.Y., entitled "American Standard Method for Determining Speed of Photographic Negative Materials (Monochrome, Continuous-Tone), PH2.5–1960."

Under the new method, speed values are expressed in two ways: on an arithmetic scale and on a logarithmic scale. Plus-X, for example, has a speed rating of ASA 160 (arithmetic) and ASA 5.5° (logarithmic).

The new arithmetic speed value is twice that of the old exposure index. The film emulsions have not been changed; the unaltered films have higher speed ratings because the safety factor characteristic of the old exposure indexes has been virtually eliminated. (Actually it has been reduced to about 1.2.)

The new logarithmic scale for expressing film speed uses numbers from 0° to 10°, representing logarithmic values to the base 2. This means that a full step from one number to the next doubles the speed. ASA 25 (arithmetic) is the same as ASA 3° (logarithmic), and ASA 50 is ASA 4°; ASA 100 is ASA 5°, and ASA 3200 is ASA 10°. The symbol ° identifies the numbers which belong to the logarithmic scale.

The ultimate aim is for all photographic values to be expressed in this new unit value system, as initiated in the logarithmic speed values scale. In addition to film speed, aperture, shutter speed, and scene brightness could also be rated on logarithmic unit scales from 0 to 10, doing away with *f* numbers and fractions of a second. This would form the basis for what has been described as the "Additive System of Photographic Exposure." A correct exposure would be a sum of the values for aperture and shutter which equals the sum of the values for film speed and scene brightness. If the film speed is 5 and scene brightness 7, correct exposure would be any combination of aperture and shutter that would give a sum of 12. On the aperture value scale *f*/1.4 would be 1 and *f*/32, 10. On the time value scale ½ second would be 1 and 1/1000 of a second, 10.

v | *Accent on the Positive*

CONTENT (WHAT THE PICTURE shows or says) is of major concern in press photography. Pictures of memorable subjects will be used in spite of technical flaws. But this is no excuse for neglecting the print-making process. Good prints result from long hours of darkroom experience; there is no short cut. Some press photographers display too much indifference to print quality. The time is long past when readers exclaimed over the mere fact that newspapers could reproduce timely photographs; readers will overlook pasty, featureless faces only if the story the picture tells has unusual impact. As often as not, the technical failure in reproduction is the fault of the photographer, not of the engraver or the pressman. Photographers should understand the total process of producing the picture, through engraving, stereotyping, and press work, since a news picture can be declared good only in terms of the form in which the reader finally receives it.

The Halftone Process

The bridge between the photograph and the printing press is the halftone screen. Without the screen, only two tones—black and white—can be reproduced by photoengraving and printing press. With the screen, the gray gradations between the extremes —the halftones—can be reproduced.

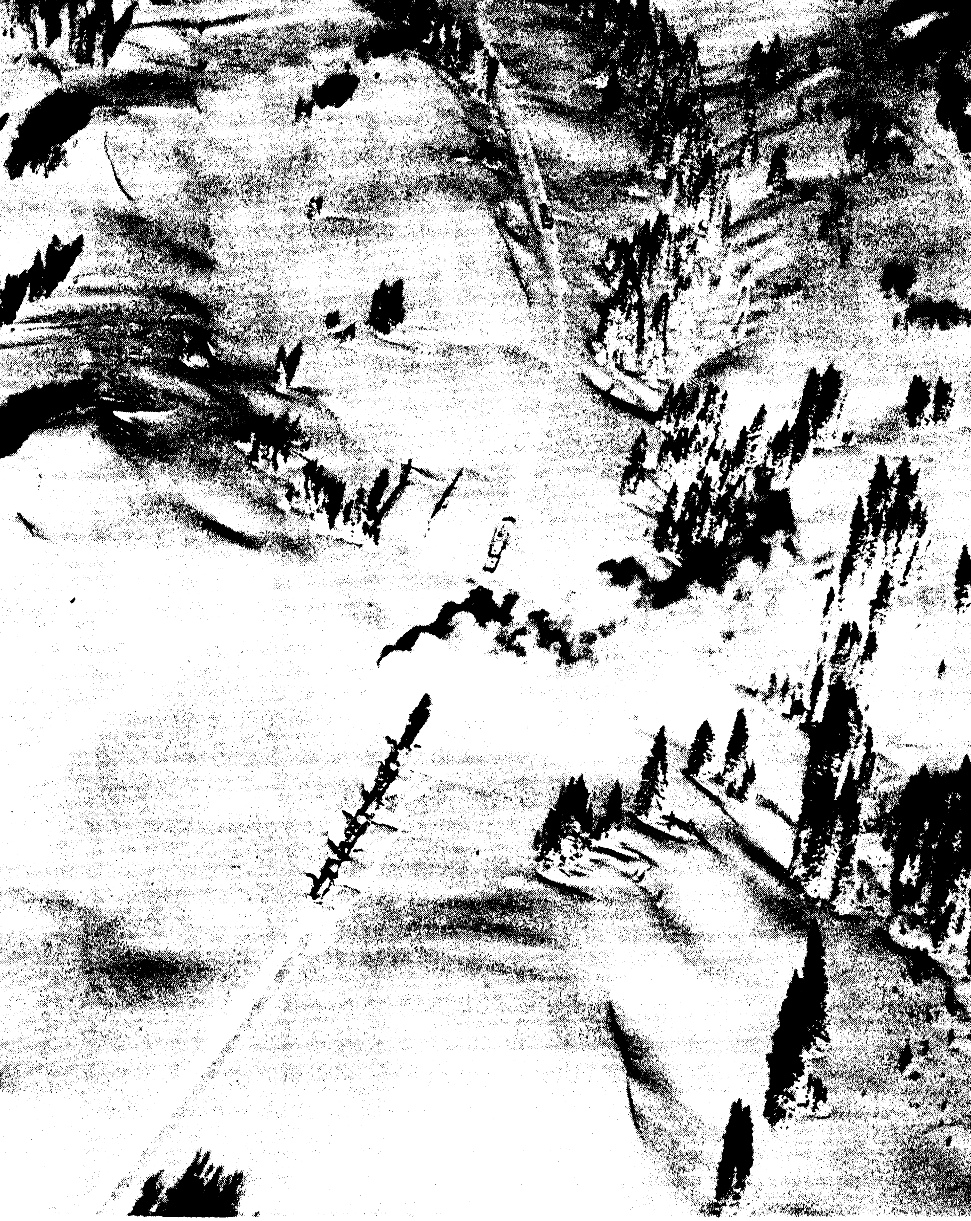
Halftone screens are made of two sheets of clear glass with black, parallel lines ruled diagonally across one sheet from left to right and on the other from right to left. The two sheets of glass are cemented together with ruled sides facing so the lines cross at right angles to form the screen. When the screen is placed in front of the film in the engraving camera, it converts the continuous tones of the original photograph being copied into separate printing surfaces—the dots of the finished engraving. If the engraving is produced by an electronic device—the Fairchild Scan-a-graver—no screen is used since the dot structure is formed by a heated stylus punching holes in a plastic plate. However the halftone engraving is produced, its very nature and method of production places certain burdens on the photographer who makes the copy print.

The dots of the engraving, and there will be about 3,600 dots in each square inch of a newspaper cut, form a mosaic pattern which the unaided eye accepts as continuous tones. Variations in the tone from almost black to almost white come from variations in the size, shape, and proximity of the dots.

Prints that Reproduce

For a print that will engrave well, the photographer begins with a good negative, a negative with good contrast (wide range of tonal contrast with good tonal separation), adequate density (but not too much), and good detail. He uses a white, glossy photographic paper, preferably one with cold, bluish-black tones. This type of paper will help preserve details and tones of the negative and give the most brilliant, sparkling print. He uses fresh chemicals—fresh developer that will bring out all tones and details in normal developing time, fresh stop bath to avoid stains, and fresh fixer in which the print stays long enough so it won't turn reddish-purple under the engraver's arc lamps.

The two weakest points in halftone engraving, whether by the photo-chemical process or by electronic machine, lie in maintaining detail and separating tones. The 65-line screen (65 ruled lines to an inch) is commonly used by newspapers because it



Albert Moldvay, *The Denver Post*

Only skillful printing could retain the texture in snow, smoke, and trees in this aerial photo of a snowbound train. This photographer's prints are invariably characterized by this extremely high quality.

makes an engraving that prints without smearing on absorbent newsprint. With this coarse screen, loss of detail amounts to about 25 per cent. This simply means that the engraving process must begin with a print containing all the sharply delineated detail that the photographer can produce. Poor detail in the photographer's print means almost no detail in the picture on the newspaper page. Typical example: pasty, unrecognizable faces in a group picture. Both highlight and shadow areas must show detail. (Exception: a silhouette.) A rough check on adequate detail can be made by holding the print in front of a strong light, with the face of the print toward the light. If detail is visible through the back, it should be satisfactory.

Just as detail will be lost through engraving, so will tones. As reproduced in the newspaper, the whites of the original print will not be really white and the blacks will not be really black. The brightness range of the print may be 50:1 (highlights 50 times as bright as shadows), but in the newspaper, that range will be greatly compressed, sometimes down to 4:1. Besides the inevitable compression of the range between extremes, there will be compression of the middle tones; many will be lost altogether. Although the original print may contain as many as 100 different tones, the reproduction may have as few as 20. Delicate tone gradations suffer the most damage in engraving and usually do not appear in the reproduction at all. For example, separation between subject highlights and light background may be lost.

The photographer, then, strives for a print with pronounced separation of tones. Highlights, middle tones, and shadows should be separated by strong, distinct lines. A delicate tone separation between dark background and almost as dark hair of the subject will mean no separation at all in the engraving. The print should not be flat (marked by an overall grayness), neither should it be excessively contrasty. A very high contrast print will lack detail in both highlights and shadows and is the worst possible copy for the engraver.

Paper Emulsions

Printing skill develops most rapidly if the photographer standardizes on one kind of paper. The profusion of papers can be reduced to manageable proportions by considering only those papers that meet the demands of news photography. Papers fall into three general classifications: chlorides (slow silver chloride emulsions for contact printing), chlorobromides (fast emulsions that combine silver chloride and silver bromide for normal enlargements), and bromides (very fast silver bromide emulsions for extreme enlargements). Within each class there are sub-types divided according to surface texture and brilliance—matte, semi-matte, lustre, glossy, semi-glossy, silk, velvet; according to paper tint—natural, white, cream-white, ivory; and according to image color or tone—from the cold tones of the blue-blacks to the warmth of the olive-browns. Photographs intended for newspaper reproduction should be printed on glossy, white, chlorobromide papers that give cold, blue-black tones.

Photographic papers are also manufactured in several contrast grades, ranging from soft through normal, to hard. Contrast grades are identified by number: 0 is extra soft (lowest in contrast); 1, soft; 2, normal or medium; 3, medium hard; 4, hard, and 5, extra hard or highest in contrast. In general, the desired contrast grade is medium to medium hard, and film should be exposed and developed so that most negatives will print on No. 2 or No. 3 paper. But approximately the same print results can be achieved by printing a flat (lacking in contrast) negative on a hard paper or a high contrast negative on a soft paper.

A fairly common mistake is the assumption that a dense negative requires a soft contrast grade in printing paper. But dense negatives can, as a matter of fact, be very flat, needing medium hard or hard contrast paper. Through experience, photographers must learn to read negatives for contrast, which is the difference between light and dark areas, not the overall density.

Some variable contrast papers are available which give a nearly full range of contrast grades through manipulation of the color of the light striking the paper emulsion. This is done by placing different colored filters between enlarger lens and easel, or by adjusting a dial to change the color of the light emitted by the enlarger's globe. In addition to eliminating the necessity for stocking several contrast grades of the same type of paper, these variable contrast surfaces also permit printing one section of a negative for high contrast and another section for low or medium contrast.

Making the Print

Focusing and cropping is done on the enlarger easel with the diaphragm of the enlarger lens wide open. The photographer experiments with cropping by letting parts of the image extend beyond the dimensions of the paper he will use for the print, thus eliminating those parts from the print. Editing is best done with the viewfinder of the camera before the film is exposed to make maximum use of the negative frame. But this is not always possible. The beginning news photographer frequently includes too much on his negative and his cropping, if he does any, is too timid. But pictures can be over-cropped, too, with loss of story-telling sections of the image. Cropping can emphasize the central theme of the picture, eliminate unwanted parts of the negative image, improve the composition, straighten horizontal or vertical lines.

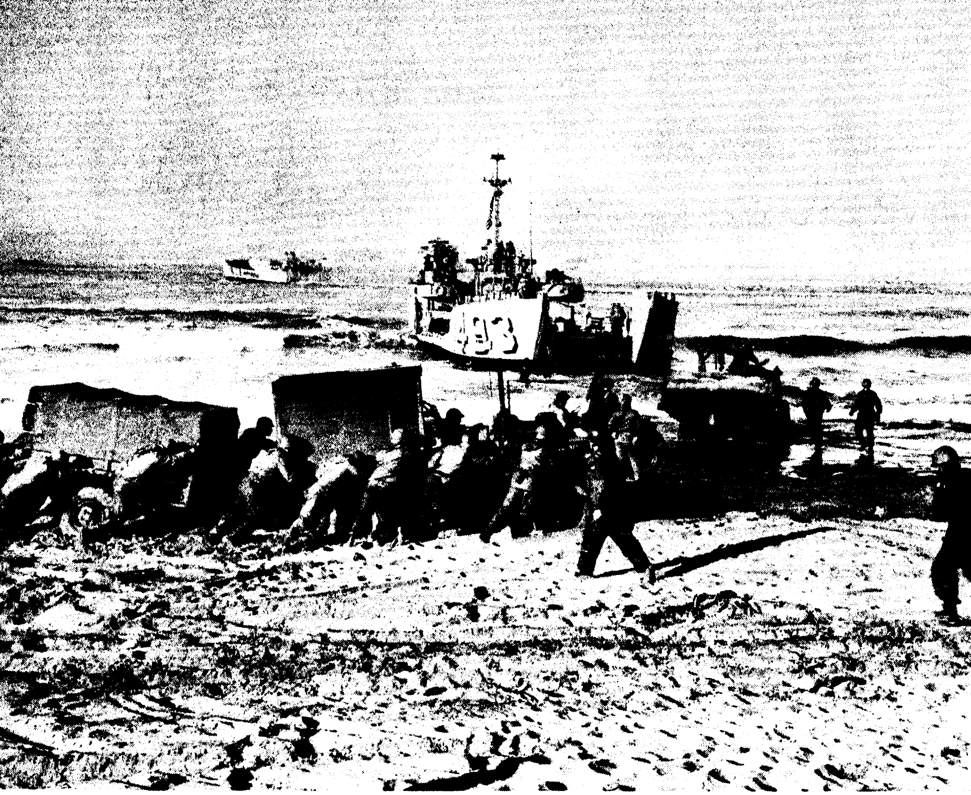
When there is time, masking the unused parts of the negative with black paper pays dividends in brighter prints. The mask eliminates stray light bouncing off walls, enlarger posts, and photographer's clothing.

To make the exposure, the enlarger lens should be stopped down to *f*/8 or *f*/11. Test strips will save time and paper for all but the experienced in photographic printing. Test strips provide a guide to correct exposure, focus, and contrast. If the exposure is too short, development must be overly long and highlights will lack crispness. If exposure is too long, the image will develop too fast and the paper will have to be yanked out of the developer before full tonal gradations have a chance to appear; shadows will be muddy gray, highlights chalky white. For most papers used in making prints for newspaper reproduction development should continue for one and one-half to two minutes.

If normal development time gives good highlight detail, the test strip should then be checked for contrast. If middle tones and shadow areas are muddy and grayish, the paper is too soft. If they are strong but lacking in luminosity and detail, the paper is too hard.

Local areas of the print may still prove troublesome after optimum exposure and development times and paper contrast have been determined. These areas probably need dodging or printing-in. Dodging is the word for shading parts of the image during exposure, keeping them from getting the same exposure time as the rest of the print. This will prevent them from turning black and detail-less in the normal development time. A piece of cardboard or the photographer's hand can be used to shade areas near the margins; paper or cardboard discus on the end of wires will shade central areas.

Printing-in (also called burning-in) is just the opposite of dodging; it adds exposure for selected areas of the image, usually those which are particularly dense in the negative. This can also be done with the hands or with a large piece of cardboard with a hole cut in it. Printing-in is frequently needed to retain for the print the highlight detail visible in the negative. Printing papers have much less latitude than films and often cannot capture details of both highlights and shadows with one overall exposure. In both dodging and printing-in the shading device must be kept in gentle motion so that no precise shadow edge will show in the print.



Felix Paegel, *Los Angeles Examiner*

"War Games." The photographer printed to retain detail in both light and dark areas. The leading lines of the composition keep the eye within the picture frame and the separation of dark and light planes imparts a third dimension into the misty distance of infinity.

During development the print should have nearly constant agitation. If it is left in the developer for a few moments without agitation it should be face down so no parts of it will float above the surface of the solution.

After development the print should go into the stop bath for about ten seconds, with agitation, and then into the hypo, face down. Prints must be in the hypo long enough to keep them from quickly fading or discoloring, but not so long that they begin to bleach. Agitation need not be constant, but should be occasional, especially if a number of prints are floating in a single tray.

A brief dip in hypo neutralizer and then a ten-minute washing in running water will help insure stainless prints until the engraver finishes with them.

Trouble-shooting

Correcting Distortion

Occasionally parallel lines in the picture subject appear to converge in the negative image. This convergence will be repeated in the positive print unless corrected during enlarging. Convergence of lines, usually referred to as distortion, although it actually is correct optical perspective and not distortion at all, commonly appears in pictures of tall buildings (the vertical lines of the structures appear to converge). This is caused when the camera is tilted to get the top of the building in the viewfinder. Here the rising front of the 4 × 5 camera proves its value in architectural photography and the view camera with shifting front and back is even more advantageous.

Converging lines in the negative can be minimized in the print by tilting the easel; thus, one end of the projected image is magnified less than the other. However, this will mean that both ends of the image cannot be brought into sharp focus at the same time. If the easel tilt is not too great this difficulty can be overcome by focusing at the center of the easel and stopping down the enlarger lens. Some dodging may also be necessary since the high end of the easel will receive more light than the low end.

With some enlargers, the negative carrier can be tilted and this makes it easier to correct the so-called distortion and still keep sharp over-all focus. Easel and negative carrier are tilted in opposite directions.

Chemical Reduction

Even selection of the correct contrast paper, correct exposure and development, extensive printing-in and dodging may fail to produce a fully satisfactory print with difficult negatives. The likely answer to this trouble is potassium ferricyanide, a photographic bleaching agent. The ferricyanide dissolves metallic silver, which forms the image of the print just as it does on the negative. The silver ferricyanide formed in the bleaching or reduction process is soluble in hypo, and the hypo can be washed out as usual in running water.

The reducing solution should be mild, about one-half ounce of potassium ferricyanide crystals to 16 ounces of water. The color of the solution should be a light yellow. It oxidizes rapidly, so fresh solutions must be mixed each time.

Prints may be submerged in a tray of reducer for overall reduction. The ferricyanide will work faster on the highlights (the areas with the least amount of silver) than it will on the shadows, thus increasing contrast. The print is placed in the reducer after it has been in the hypo for at least three or four minutes. After reduction, the print is washed briefly in running water, then returned to the hypo. Reduction in stages is usually better than attempting to complete the full reduction in a single immersion in the ferricyanide solution; over-reduction is always a danger.

This treatment is often the only way to get a satisfactory print from a very flat negative. The print is made on No. 4 or 5 paper, or with a contrasty filter and variable contrast paper, and then overdeveloped. The resulting dark print is shifted back and forth between tray of mild ferricyanide solution and tray of hypo until correct overall density is achieved.*

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* Some photographers prefer to use Farmer's reducer, a mixture of hypo and potassium ferricyanide, rather than separate trays of hypo and ferricyanide. For an excellent discussion of the use of Farmer's reducer for print reduction see *Lootens on Photographic Enlarging and Print Quality* by J. Ghislain Lootens, revised and enlarged by Grace Hooper, American Photographic Book Publishing Co., New York, 1953.

The reducing solution may also be used on local areas, on dark shadows underneath eyebrows or other areas which cannot be handled properly with dodging. The authors recommend the following procedure for spot reduction to avoid the very real hazard of the reducing solution spreading to areas where no reduction is needed. This unwanted reduction beyond the small spot-being treated can quickly ruin a print.

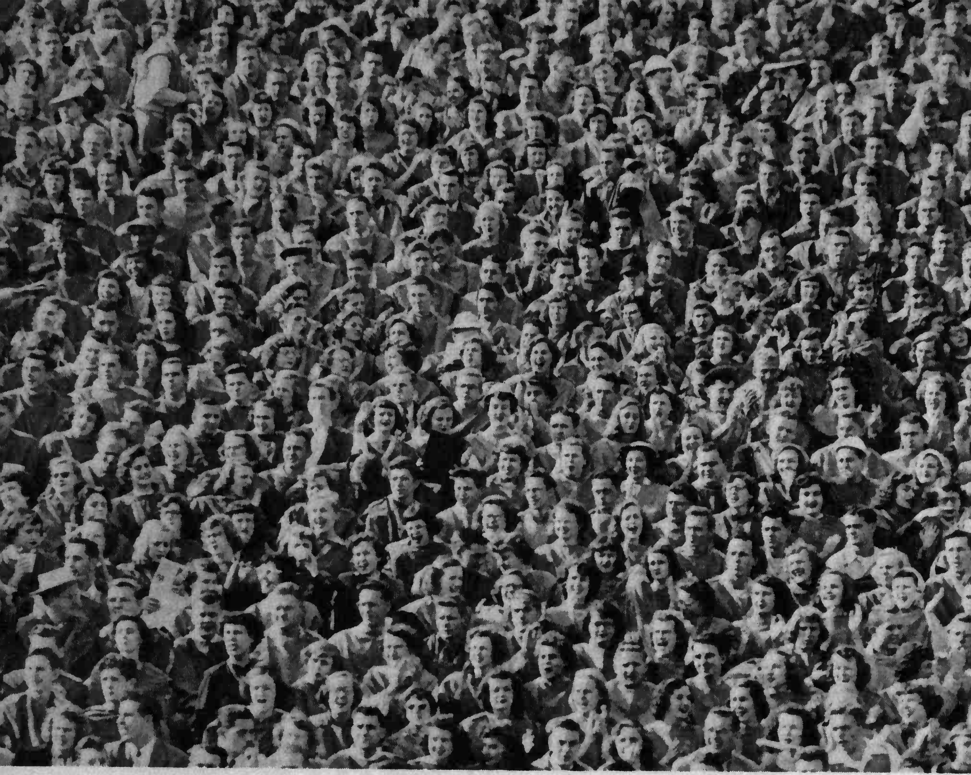
Process the print as usual and place it on the dryer. While the print is drying, prepare a working solution for spot reduction from a concentrated solution of potassium ferricyanide (which will last a year) by adding one dram of the concentrated solution to three-fourths of an ounce of water, adding a few hypo crystals, and a retouching brushful of Photo-flo solution.

Wet only the spot to be reduced on the dry print with a solution of Photo-flo and water, being careful to leave the area surrounding the spot dry. Blot away excess water from the spot and apply the reducing solution to the wet area until the desired reduction is accomplished. Fix, rewash, and redry the entire print.

A word of caution: artists in the newspaper's art department who may be asked to retouch a reduced print should be warned that ferricyanide has been used. Many newspaper artists wet the cotton swabs they use by placing them in their mouths. This could result in poisoning if the reduced print has been improperly fixed and washed after reduction.

Flat Prints

When a print from what appears to be a fairly normal negative comes up flat in the developer, with muddy shadow areas, the trouble may lie in one or more of several areas. The enlarger lens may be dusty or smeared with fingerprints. Lenses should be checked and cleaned periodically. The condensers in the enlarger may be dusty or smudged. Condensers must be handled with a cloth to avoid leaving fingerprints. (Spot trouble may also lie in the enlarger, since dust collects in the bellows, and



Morris Berman, *Pittsburgh Sun Telegraph*

Cropping in camera viewfinder and in printing on the enlarger easel so that no edge of the crowd is visible emphasizes the seemingly endless mass of this football crowd. The cross-lighting was a significant factor in recording an interesting pattern of faces. The picture was taken with a Speed Graphic with 12-inch lens on Royal Pan film at 1/100, *f*/22.

then falls on the negative as the image is focused on the easel.) Stray light from the enlarger may be bouncing off walls or other objects and fogging the image. Or the safelight over enlarger easel or developing tray may not be really safe; safelight filters deteriorate.

The trouble may lie in the developer itself. Old, overused developer cannot produce brilliant prints. Cold developer (below 65 degrees) will act too slowly and the blacks in the resulting print are not intense. Warm developer may produce a mottled or stained print. The best rule: develop by time and temperature.

Developer Improvements

Adding sodium carbonate to the developer will speed up slow papers—full development will require less exposure time at the enlarger; it will re-energize sluggish, brown developers, and it will enrich and strengthen the blacks in the prints. The solution is made by mixing two ounces of sodium carbonate with 32 ounces of water. Three to six ounces of this stock solution can be added to the tray of developer.

Adding potassium bromide to the developer slows up paper emulsion speed, prevents fog, and keeps highlights clearer. A ten per cent solution of potassium bromide is made by adding enough water to one ounce of the bromide to make ten ounces by volume. An ounce of the ten per cent bromide is added to 32 ounces of developer.

Adding both carbonate and bromide to the developer will tend to increase contrast in the print, since the carbonate strengthens the blacks and the bromide whitens the highlights.

Variable Contrast Papers

Combining dodging and printing-in techniques with variable contrast papers can produce superior results with otherwise troublesome negatives. Some workers who have standardized on a variable contrast paper use two filters with most prints: a hard contrast filter for part (usually less than half) of the exposure and a medium filter for the remainder. This gives better blacks. Or highlights can be printed-in with a high-contrast filter to boost contrast, with a low-contrast filter to soften contrast used for the rest of the print. It's best to use the high-contrast filter first.

Retouching the Print

Small newspapers that do not have an artist with an airbrush can still retouch prints to build up tonal gradation and separate subject from the background. This can be done with Bourges

Modeling Pencils, available at most art supply stores. Two pencils, a black and a white, are handy tools for quickly and easily building up gray tones along the outlines of the subject. A piece of cotton quickly wipes off errors. The pencils, of course, are not for small details.

VI

Optics for the Press Photographer

"BUT OPTICS SHARP IT NEEDS, I ween, to see what is not to be seen," John Trumbull wrote in *McFingal* long before photography was invented. But the thought applies to photography. Photographers need sharp lenses to capture and preserve the revealing moment. But the sharpest of lenses is of limited value to the photographer who does not understand its functions.

The first essential in photography is image formation and, in truth, an image can be formed without a lens. This was demonstrated centuries ago with the *camera obscura,* and anyone with curiosity enough to sustain the effort can so demonstrate it today with a shoe box or coffee can which is light-tight, except for a pinhole at one end. The pinhole will form an image, but a faint one, and one that lacks desirable sharpness. Because of the faintness of the image, exposures with a pinhole camera must last for many seconds, even in bright sunlight. These shortcomings make the pinhole camera impractical for anything but an interesting experiment in the study of light's properties. The pinhole camera demonstrates, for example, that light travels in straight lines. Physicists call it rectilinear propagation. Light rays reflected from the pinnacle of a church tower travel out in all directions at once. A very few of these rays will reach the pinhole of a box we have positioned on a tripod and aimed at the church. These rays from the steeple travel downward through the pinhole and to the bottom of the film we have placed at the back of the box. A very few light rays reflected from the white bottom step of the church also move through the pinhole in a straight line, traveling upward, and they strike the top of the film. Light rays from right and left behave the same, and the result is a reverse image of the church on our film.

But it's a very faint image. We can enlarge the size of the pinhole to let in more light rays from all parts of the church, but no two light rays from any single point are traveling on exactly the same straight path. Our first very small pinhole let in only those rays from any given point that were traveling very close together, on nearly the same path. The result was a slightly fuzzy image, but a recognizable one. Now that the hole is much larger we have let in relatively widely divergent rays which all began at the same point. They strike the film at different points and the result is a badly blurred image. We must have a bigger hole to gather more light, but we must focus that light so all rays beginning at one point will return to a single point on the film. The answer, of course, is the lens.

The lens collects a bundle of light rays coming from a single point source, redirects them by refraction, so they come back together at a new point, on the film, thus giving us both greater light-gathering power and a sharper image. Refraction simply involves bending the light ray, deflecting it from its rectilinear course. We can do this, as most of us learned in high school physics, by forcing the light ray to move from the air through a denser medium—in the case of photographic lenses, glass—and then back to air again. The amount of refraction of each light ray will depend upon the angle at which it strikes the lens and the degree of curvature of the lens surface. Lenses are so designed that rays originating at a single point will be refracted just the right amount to bring them back to a single point behind the lens—at the film if we have focused correctly. Actually, the lens does not do this with perfect efficiency. But the aberrations—the term given to various shortcomings in the way the lens refracts light—have been so nearly corrected in all lenses used in press photography that we need not concern ourselves with them. So now with sharp, light-gathering lenses, the camera can "see" and record what happens in a fraction of a second, something that was not to be seen at all through a mere pinhole.

Ways of the Lens

The lens is the camera's eye—a truism that is only partly true. We can compare the physical properties of the camera lens and the human eye, and find remarkable similarities that reveal much about both. But to assume that the lens-film relationship is identical to the eye-brain relationship is a sure way to disappointment. What the eye reports is extensively edited and amended by the brain; details which your eye "sees" but which are unimportant to you at this moment as you read this page are ignored by the brain. You see only what you want to see. The camera has no such automatic editor. The view of the front range of the Rocky Mountains from the backyard of one of the authors of this book is an inspiring scene he enjoys every day. A camera "looking" at the same view would produce a poor photograph. The camera lens would report without compromise the ugly telephone poles along the backyard fence that the human brain has chosen to ignore. The camera sees only the physical facts that lie in front of its lens; the human brain sees the same scene glamorized by memories and colored by emotion.

The lens is capable of reportage in fascinatingly rich detail; it can with the photographer's selective guidance, relate, isolate, and concentrate; it can freeze motion in a sharply defined image that the eye sees only as a blur. But to exploit the marvelous characteristics of the camera lens, we must be familiar, at least in general theory, with some of the optical laws to which the lens is subject. Although the kinds and styles of lenses are legion, the number of optical laws we need to know are few and universal.

Focal Length

When we focus a camera, we change the distance between lens and film until all light rays intercepted by the lens from a given point on the subject converge again on the surface of the film. As the subject moves closer to the lens, the distance between lens and film must be extended. As the subject moves away from the lens, the distance between lens and film must be decreased, if we are to stay in focus. But as the subject continues to move away, we find that we reach a point where further contraction of lens-film distance is no longer needed. At that point, the lens is set at its principal focus. Light rays coming from any given point on the subject are striking the lens on practically parallel paths. Further extension of subject-lens distance will make no difference; the light rays are already parallel and will remain the same even though the subject moves on to infinity. So in effect we have already focused the lens at infinity.

When the lens is set at principal focus, or, to put it another way, when it is focused on infinity, the distance from the lens to the film (focal plane) is the same as the focal length of the lens. This distance will vary greatly between different lenses, but will never change for any given lens, unless we physically alter the lens in some way. The focal length of a thin lens of one glass element can be easily measured, but for compound lenses, which have three to perhaps seven glass elements, it's much more difficult. The focal length is not the distance from the front or rear of the lens to the film plane, but from an imaginary point called a node that is usually, but not always, near the physical center of the lens. But we don't have to worry about measuring the focal lengths of most lenses we use, since the manufacturer supplies that information, engraving it right on the lens mount. The lens may be, for example, described on the front of the mount as "$f/4.7$, 135mm," or "1:35 $f = 75$mm." The first is a lens with a maximum aperture of 4.7 and a focal length of

135 millimeters. The second lens would be one with a maximum aperture of 3.5 and a focal length of 75 millimeters. Sometimes the focal length is given in inches instead of millimeters. It's easy to transfer one to the other since we know there are 25.4 millimeters to an inch.

The focal length of the lens he is using is of great importance to the photographer because it directly affects the image he'll record on his film. The focal length affects the angle of view, the apparent perspective in the finished print, and size of the image.

Angle of View

Camera lenses are often classified roughly into three categories: short focal length, normal or standard focal length, and long focal length or telephoto. But these classifications are based on a relative measurement, not on any absolute scale. Handed an 80mm lens, we would be unable to say whether it was short, normal, or long until we were told what size negative the lens was designed to cover with the image it projects. A normal lens is one that has a focal length approximately equal to the diagonal of the negative being used in the camera. The diagonal of 35mm film measures about 45mm; of 120 film, about 80mm and of 4 × 5 film, 155mm. These, then, are approximate figures for normal focal lengths with these cameras. Lenses of these focal lengths, when used with the film size specified, would give an angle of view across the film diagonal of about 54 degrees. The horizontal angle of view (assuming that the 35mm and 4 × 5 cameras are held with the long dimension of the film on the horizontal) will be about 44 degrees for the 35mm, 40 degrees for the 120 camera, and 43 degrees for the 4 × 5.

News photographers, however, frequently use cameras fitted with lenses which are short (less than normal) in focal length. For example, 4 × 5 cameras in press work generally have lenses of 127mm or 135mm focal length. The 120 reflex camera often is used with a 75mm lens and the 35mm camera with a 35mm lens. In each case the camera reporter is selecting the short focal length to get a wider angle of view. In these examples the horizontal angle of view would be 51 degrees with the 4 × 5, 42 degrees with the 120, and 54 degrees with the 35mm. Even shorter focal lengths, available particularly for the 4 × 5 and 35mm cameras, can widen the angle of view even more. In photojournalism, the photographer is frequently close to his subject by choice or because of cramped quarters. He needs something more than normal picture field angle to be sure of getting all his subject on the negative.

Exchanging the normal lens for one of longer focal length will have just the opposite effect on angle of view, of course. A 90mm lens on the 35mm camera would have a horizontal angle of view of 23 degrees; a 200mm lens, 10 degrees.

You can make a rough approximation of what happens when lenses of varying focal lengths are placed on a camera which is allowed to stay in one position. Cut a round hole about the size of a dime in a piece of paper or cardboard. Then hold the paper at arm's length and look through the hole at any convenient subject. You are now seeing the subject much as a long focal-length or telephoto lens would see it. Now move the paper toward your eye, noting how your view through the hole widens. As the paper approaches your eye, you will see the subject much as a short focal-length lens would see it. Short focal-length lenses are usually referred to as wide-angle lenses, just as the long focal lengths are often given the name telephoto.

Image Size

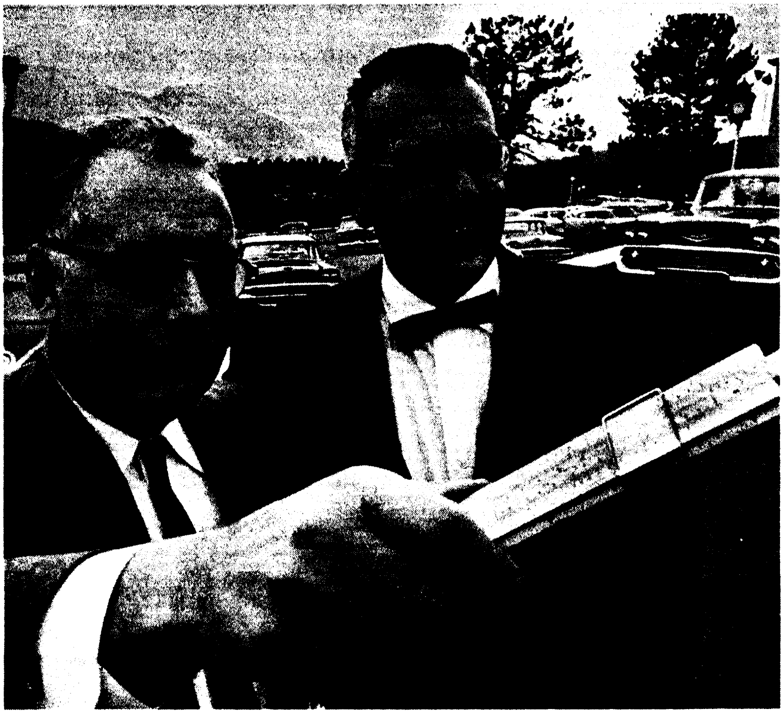
As we narrow the angle of view by increasing the focal length, we are recording less and less of the subject on the film. But we are still using the same size negative and filling all of the negative frame. There's only one possible conclusion: as the lens angle of view narrows, the size of the image on the negative must increase. This explains the magnification effect of the long focal-length lens.

The size of the image is directly proportional to the focal length of the lens. An object that is 1 inch high on the negative when a 2-inch lens is used will be 2 inches high when a 4-inch lens is used from the same camera position. Or we can use this image-size, focal-length relationship in another way: To get a human subject's head to measure one-half an inch high on our negative using a 50mm lens, we would have to move in to about 4 feet from the subject. But we could maintain the same image dimensions at 16 feet from the subject by using a 200mm lens. The long focal-length lens, then, is the press photographer's answer to the problem of how to shoot from a relatively great distance and still get desirable negative image size.

Apparent Perspective

Perspective in photography, as in art, refers to the way in which an illusion of a third dimension, depth, is created in a picture which is in actuality a plane, and therefore has only two dimensions, height and width. In black-and-white photography this illusion of depth must depend mostly upon linear perspective or scale—reduction of the relative dimensions of objects as the objects recede into space. Stand so you can look along the side of a long building. The windows at the far end of the building will appear smaller than those at the near end, though in fact they are all the same size. Now move to a position where you are facing the center of the building's side at a 90-degree angle. All windows now appear to be much closer to being the same size, diminishing only slightly to right and left. Place a camera at either position, and the lens will see exactly the same perspective your eye reported. The controlling factor in perspective, then, is viewpoint.

The focal length of the lens has no real effect on perspective; it has only an apparent effect. We can easily prove this by the



David Mathias, *The Denver Post*

Apparent distortion created by short focal-length lens places emphasis, through exaggerated size, on hand and slide rule held close to the camera lens.

laws of geometrical optics. The image on the negative is directly proportional to the focal length of the lens and inversely proportional to the distance between subject and lens. Then, if we assume an image size of one-half inch from a 50mm lens with the subject at 10 feet, at 20 feet the image of the same subject will be one-fourth inch, and at 40 feet, one-eighth inch. With a 100mm lens at 10 feet, the image of the same subject will be one inch; at 20 feet, one-half inch, at 40 feet, one-fourth inch. Linear perspective, or scale, remains the same regardless of focal length.

If we shoot with a prominent foreground object close to a short focal length (or wide-angle lens), the result will be an apparent distortion of perspective because the foreground object will appear unusually large. But the seeming distortion stems from the unusually close viewpoint established for the camera lens, as well as from the fact that we may not be looking at the print from the correct distance. For a contact print, correct viewing distance is the same as the distance between image and lens. With a 50mm lens, that would mean approximately two inches. But we don't use contact prints in news photography; we use enlargements. A picture taken with a 50mm lens and enlarged five times should be viewed at about 10 inches if the enlargement represents the full negative. If the picture is cropped, obviously the proportions would not remain the same and viewing distance for correct perspective would change. Reduction of picture size in making the engraving would again alter correct viewing distance.

The apparent foreshortening effect of the long focal-length lens can be explained on the same basis. Using a telephoto or long focal-length lens, we stand back farther than normally from the subject and the result is weakened perspective. The long lens brings the subject up to close viewing-distance but retains the perspective of a distant view. Take the same picture with a normal or short focal-length lens from the same camera position, and enlarge the area covered by the long focal-length lens, and the same apparent flatness occurs. Objects which are really far apart seem to be close together in both prints.

Interchangeable Lenses

This analysis of the significance of focal length points up reasons why photojournalists often prefer cameras that offer lens interchangeability. And since interchangeable lenses can be most conveniently handled with one or two 35mm camera bodies, this explains in part why newspaper photographers have been switching to the small cameras.

Movie cameramen for newsreels and television have been armed for years with so-called "zoom" lenses which offer variable focal lengths in a single optical objective. In 1959 two German firms, Voigtlander and Zoomar, announced the result of a joint project: a variable focal-length lens for 35mm still cameras of the single-lens reflex design. This lens, which offers continuously variable focal length from 36 to 82mm, may well be the prototype of a series of such optics. This first "zoom" lens for still photography does not give negative image quality the equal of fixed focal-length lenses, but there's no reason to believe that "zoom" lens designs will not be improved, and in any case, news photographers may find it worthwhile to sacrifice some image quality for the variable focal-length feature on some assignments.

The Wide-Angle Lens

The wide-angle lens is a short focal-length lens, that is a lens with a focal length shorter than the diagonal of the negative it is designed to cover. Its advantages are that it sees more at less distance and offers increased depth of field at any given lens aperture. (Depth of field is discussed later in this chapter.) When the news photographer's assignment involves an indoor situation where cramped quarters keep him from backing away for an over-all view, the wide-angle lens offers the solution. The wide angle of view takes in objects at right and left that would be omitted in a picture taken with a normal lens.

With the wide-angle lens, it's also possible to place emphasis on a foreground object without excluding relevant background, and both foreground and background can be brought into acceptable focus. This frequently results in a better storytelling picture with greater dramatic impact.

But there are problems, as well, in using this wide angle of view. Object images can creep within the negative frame that detract from rather than add to the picture's message. Generally, the difficulty of getting a meaningful composition increases in direct proportion to the number of objects included in the picture. If the photographer finds he must do considerable cropping in making the print, then his wide-angle lens was a handicap, not an advantage.

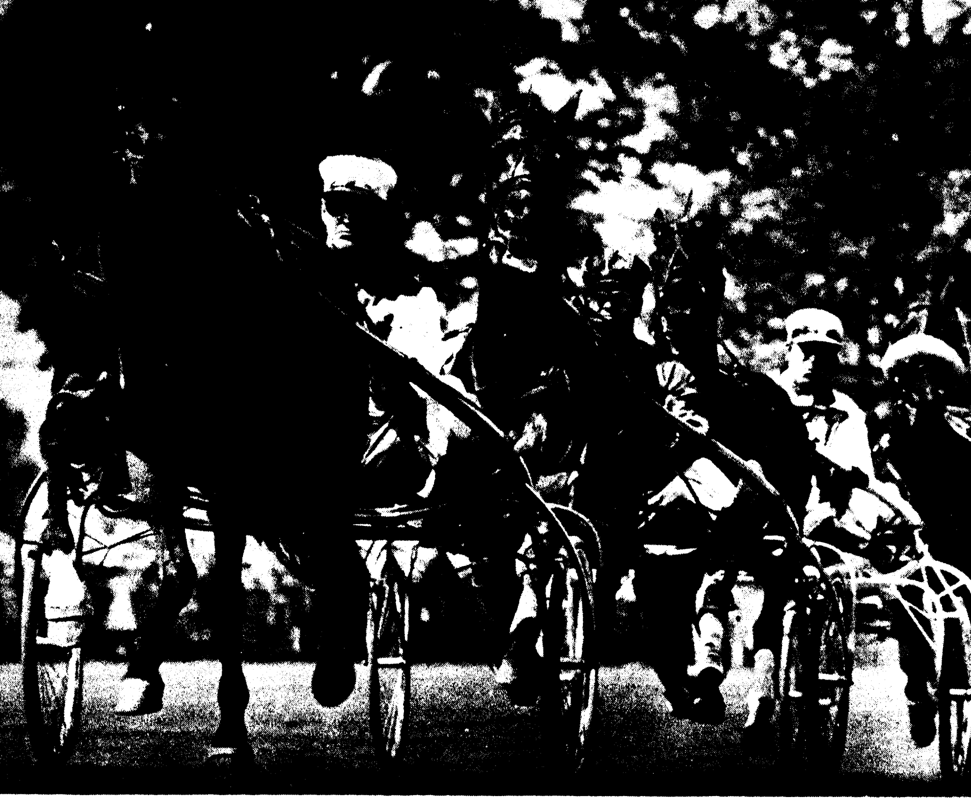
The most frequently used wide-angle lens with 35mm cameras is one with a 35mm focal length. However, focal lengths of 28, 25, and 21mm are not uncommon. With these short focal lengths, the photographer is sometimes tempted to move in very close to the main subject, but this should be done only if exaggerated size in the nearest foreground object will serve his reporting purpose.

Photographers occasionally encounter vignetting in the negative after using the rising or shifting movements of the lens board on 4 × 5 cameras. This is most likely to happen with short focal-length lenses since these generally have a covering power just barely sufficient for the 4 × 5 negative.

The Long Focal-Length Lens

We have already seen that the principal advantage of the long focal-length lens is the large image it gives at relatively great distances. But the telephoto view has other advantages. It tends to isolate subjects so they can be viewed in the finished print without distractions created by irrelevant objects. It also appears to compress space and thus can be used to stress the relationship between two objects that would normally appear widely separated.

The most commonly used so-called tele-lenses in the 35mm field are those with focal lengths ranging from 75mm to 135mm. Other lenses are available, at a considerable price, ranging up to 1,000mm. But the longer the focal length, the bigger, the clumsier, and the heavier, and beyond the 135mm range these lenses generally cannot be focused with the coupled rangefinder. With



George A. Smallsreed Jr., *The Columbus Dispatch*

A telephoto lens on a Speed Graphic (1/1000 of a second shutter speed at *f*/16) moves the viewer close to the action. The long lens "stacked up" the subjects, as though only inches separated the first horse from the last. The low angle of view and the rhythmic repetition of patterns give the photograph storytelling composition.

the really long lenses the photographer will usually find it advisable to use a tripod to hold the camera steady.

Relative Aperture

To control exposure, we must control the light which strikes the film. One way in which we can control the light is by varying its intensity at the film plane. The intensity will vary with the amount of light transmitted by the lens and with the area over which the light has to spread. We can imagine a situation which roughly approximates the circumstances inside the camera. Let's assume we are inside a room which has one circular but expandable window in the center of an outside wall. The wall opposite the window is movable. As we expand the size of the window, the light intensity on the opposite wall increases; as we decrease the window size, light intensity falls off. The light intensity, then, is proportional to the size (area) of the window. From the formula for determining the area of a circle we can assume that light intensity is proportional to the square of the window's diameter.

Now let's leave the window at a fixed diameter (aperture) but move the opposite wall. We find that the effect is the same. Light intensity on the wall increases as the wall moves toward the window, falls off as the wall is shifted away. Light intensity, then, must be inversely proportional to distance between window and wall.

To bring both factors together into one formula, we can say that light intensity is proportional to the square of the diameter of the window divided by the square of the distance to the wall. But this would give us a fraction since the diameter of the window will very likely be smaller than the distance from window to wall. So let's invert the two factors and make it: light intensity is proportional to distance from window to wall, divided by the window diameter. This will give us a relative measurement of light intensity for any combination of window size and wall distance. If the window diameter is 2 feet and distance to the wall 10 feet, the figure which gives a relative measurement of light intensity is 5. If window diameter is 1 foot and wall distance remains 10 feet, relative light intensity becomes 10. So this means, the larger the number, the less the light intensity. This is to be expected since we inverted our original formula to avoid fractions. In fractions, the relative light intensity measurements would be 1/5 and 1/10. Now if we leave the window diameter at 1 foot, but move the wall to 5 feet from the window, our light intensity figure becomes 5 again. A small window one-half the diameter of a larger one will give as much light intensity on the opposite wall if we also cut the distance from window to wall by one-half. The closer the diameter of the window comes to being equal to window-wall distance (or the closer our relative figure for light intensity comes to 1), the brighter the light on the wall.

This is relative aperture—the *f* numbers marked on cameras as a guide to setting the aperture (diameter) of the diaphragm to control the amount (intensity) of light which reaches the film. The *f* number is merely a simple way of expressing the relationship between diameter of the diaphragm opening and lens focal length. Thus a diaphragm set at *f*/16 means that the diameter of the opening is 1/16 of the focal length. Lenses are also described by their maximum diaphragm opening (the full diameter of the lens); so an *f*/2 lens is one whose diameter is one-half of its focal length. An *f*/1 lens would have a diameter exactly equal to focal length.

Speed vs. Quality

The smaller the *f* number, the more light falls on the film—or as photographers phrase it, the faster the lens. *F* 1.5 lenses are fairly commonplace today, and some have been made in which the diameter of the lens is actually greater than the focal length, and the *f* number is then less than 1. The theoretical minimum *f* value (or maximum theoretical speed) is *f*/0.5—a lens diameter twice the focal length. A lens of that speed would have its rear surface resting against the film.

A fast (wide aperture) lens does not necessarily mean a better lens. A fast lens has great light-gathering power and is useful under poor light conditions. A fast lens gives a brighter image but not necessarily a better quality image. Problems of lens design to overcome aberrations (causes of unsharp images) become greater as the relative aperture of the lens increases. The knowledgeable photographer shoots at wide-open lens aperture only when he must. Image quality will generally be improved if he takes advantage of every opportunity to stop down—close the diaphragm at least two stops from its maximum opening. On occasion, poor light conditions or need for fast shutter speed to stop action may force use of maximum lens speed, but under normal conditions a lens will give its best performance (best image quality) at normal cruising speeds, somewhere in the middle range of *f* stops.

The *f* Stops

The most convenient system of *f* stops is one in which light intensity doubles with each stop that increases the lens diameter. We have already seen that the amount of light admitted by the lens is proportional to the square of the lens diameter. To double the diameter would quadruple the light admitted. But if we multiply the diameter by the square root of two (1.4), the light will be doubled, since the light admitted will be multiplied by the square root of two squared, or two. The major lens stops then are determined by beginning with 1 and multiplying for each step by the square root of two. This gives us the sequence: 1.0, 1.4, 2, 2.8, 4, 5.6, 8, 11, 16, 22, 32, 45 and 64. Intermediate stops such as 1.5, 3.5 or 6.3 are generally maximum diameters of a specific lens. In the series of full stops, *f*/8 is twice as fast (gives twice the exposure) as *f*/11; *f*/11 is twice as fast as *f*/16. Then, *f*/8 is four times as fast as *f*/16, and *f*/1.0 gives 1,024 times more exposure than *f*/32. There are 10 stops between 32 and 1.0 and the light doubles each time; therefore, the increase can be expressed as 2^{10} or 2 multiplied by 2 ten times. Or, another way to express it: image brightness varies inversely with the square of the *f* number; the square of 1 is 1; the square of 32 is 1,024.

Theoretically, the intensity of light reaching the film is the same with all lenses set at the same *f* number, regardless of focal length. Exposure will be the same at *f*/16 regardless of whether we are using a 50mm lens on a Leica or a 127mm lens on a Speed Graphic. In each case, *f*/16 gives us a diaphragm opening 1/16 of the focal length: 1/8 of an inch for the Leica lens, 5/16 of an inch in the case of the Speed Graphic.

Actually, lenses are not perfectly transparent; some of the light which reaches the front surface never manages to get all the way through to the film. About 5 per cent of the light is lost by reflection at each glass-air surface in the lens. A simple, one-element lens would lose 10 per cent of the light; but the cameras ordinarily used in press photography have complex lenses with six or even eight elements and light loss could run as high as one-third or one-half. But there's no need to be alarmed; lens manufacturers have found a way to save most of this light. Almost all lenses today are coated with very thin layers of metallic fluorides to cut light loss from 5 per cent at each surface to about 1.5 per cent. So now even for a very complex high-speed 35mm lens which may have as many as 10 glass-air surfaces, light loss by reflection will amount to only about 15 per cent. The lens coating, which usually appears as a sort of bluish or purplish tinge on the lens, also serves another very useful purpose; it eliminates nearly all flare spots and ghost images on the negative. With uncoated lenses, these sometimes appear because light reflected at an internal lens surface is reflected a second, third, or even fourth time, and eventually reaches the film. Despite lens coating, light can still be reflected from fingerprints or dust on the surface of a lens. This reflection will not cause flare spots or ghost images, but it may be enough to lighten the image shadows to a noticeable degree.

It's well to remember that the *f* number represents a relationship between lens diameter and focal length and the lens is positioned at its focal length only when it is focused on a distant object. As we focus on objects closer to the lens, the distance between lens and film increases, and the *f* number can no longer be a really accurate measurement of light intensity at the film plane. However, we can ignore this for all exposures but extreme closeups, say less than 4 feet.

Depth of Field

In photography we are attempting to record three dimensions in only two. Theoretically, then, the lens will record in sharp focus at the film plane behind the lens only those objects which are in a single plane in front of the lens. However, the human eye looking at a photographic print cannot distinguish under average conditions what is only very slightly out of focus from what is in accurate focus. This gives us a leeway which we call depth of field: the distance between the nearest object and the farthest object that appear satisfactorily sharp in the finished print.

An object appears out of focus because light rays coming from points on that object are not brought back to points at the film plane. Instead, coming out of the rear of the lens in the form of an imaginary cone, those light rays strike the film at separate spots and do not create images of points on the object, but circles—circles of confusion. But if the circles of confusion are so small on the finished print that the eye of the viewer cannot detect them, the object still appears to be in focus.

The two major factors controlling depth of field are distance from lens to subject and the diameter of the lens opening because both directly affect the angle at which the light rays approach the film. The greater the angle in this cone of light rays the wider the circle of confusion. So depth of field will increase as the subject (or point of accurate focus) moves farther and farther away from the lens up to the point when depth of field reaches infinity. Beyond that, of course, no further increase is possible. Depth of field will also increase as the diameter of the lens opening decreases since peripheral light rays that approach the film at the largest angles are reduced as diameter decreases.

Julianne Baker Warren, *The Cincinnati Post and Times-Star*

This "weather art" was shot with a Speed Graphic at 1/100 of a second at *f*/22 to get both foreground and background within the depth of field. The "tunnel" composition and dark frame of the foreground were deliberate, to add a feeling of depth.

Hyperfocal Distance

When depth of field at its farthest point reaches infinity, the lens is focused at what is called hyperfocal distance and the near point of depth of field will be halfway between the camera and the point on which the lens is focused.

Obviously one factor involved here is how large a circle of confusion we will accept before we decide that the object is out of focus. This will depend upon how critically the finished product is to be judged, how big an enlargement is planned, and how close the print will be viewed. In general, we can accept a circle of confusion for press photography that is 1/1000 of the focal length of the lens. Then we can draft a formula to figure hyperfocal distance. Multiplying the diameter of the lens opening in inches by 1,000 will give us hyperfocal distance. Example: What will be the hyperfocal distance for a 50mm lens with the diaphragm set at *f*/8? The diameter of the diaphragm opening will be one-fourth of an inch (8 divided into 2 inches). And ¼ × 1,000 gives us 250 inches, or nearly 21 feet. That's our hyperfocal distance. Then all objects from about 10 feet in front of the camera to infinity will be in acceptable focus.

By the same method, we can easily determine that the hyperfocal distance for a 75mm lens set at *f*/8 is about 31 feet. The hyperfocal distance for a 127mm lens at *f*/8 is about 52 feet.

Depth of Field Formula

More than 50 per cent of the depth of field always lies beyond the object focused upon. For example, with a 127mm lens set at *f*/16 and focused at 10 feet, the near point of depth of field is 7 feet, 4 inches and the far point, 15 feet, 9 inches. Approximately two-thirds of the depth of field is beyond the point of focus. This difference, however, decreases as the point of focus moves toward the camera and as the lens aperture becomes larger.

Many cameras have markings which give a close approximation of depth of field for any combination of *f* number and point of focus. However, on rare occasions photographers need to calculate depth of field and this can be done by the following formula:

$$\text{Near limit of depth of field} = \frac{H \times d}{H + (d - f)}$$

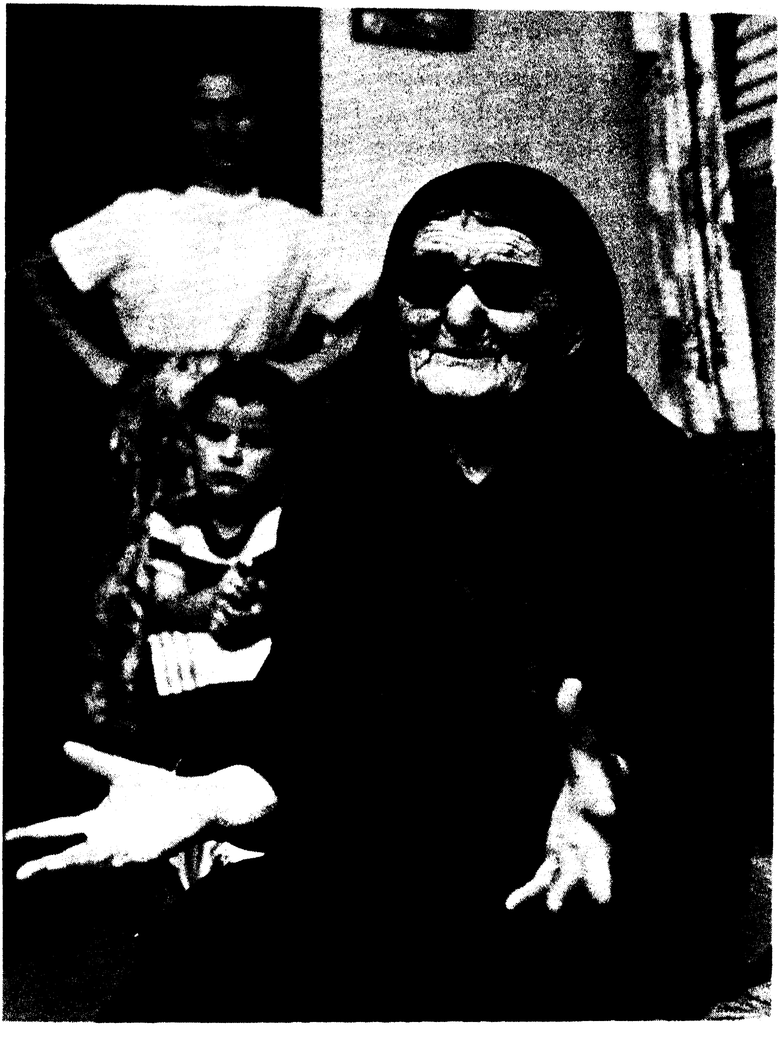
$$\text{Far limit of depth of field} = \frac{H \times d}{H - (d - f)}$$

H is the hyperfocal distance.
f is the focal length of the lens.
d is the distance focused upon.

Some Conclusions

The depth of field is the same for all lenses if the diameter of the diaphragm openings and distance focused upon are the same. A 50mm lens at *f*/4, a 75mm lens at *f*/6, and a 127mm lens at *f*/10 would all be set at an aperture diameter of one-half inch. Therefore the 50mm lens on a 35mm camera will have the same depth of field at *f*/4 as the 127mm lens on a 4 × 5 camera at *f*/10. This points up an important advantage of the 35mm camera: greater depth of field at larger relative aperture. Sometimes it's put this way: the shorter the focal length of the lens, the greater the depth of field. But this is true only in relation to a given *f* number. The variable is the actual measurable diameter of the lens aperture; if the diameter of the aperture remains constant, say at one-half inch, any change in focal length will make no difference in depth of field.

It is also obvious that we must exercise more care in focusing on near objects than on those far away, since depth of field decreases radically as the object focused upon approaches the lens. For subjects 10 feet or more from the lens, however, we can often shoot without focusing at all by simply relying on depth of field if the light level, either natural or from flash, is high enough so we can expose at a relatively high *f* number, about *f*/5.6 or greater with a 50mm lens and about *f*/16 or higher with a 127mm lens. Using depth of field in this manner is some-



Julianne Baker Warren, *The Cincinnati Post and Times-Star*

This time the photographer used *f*/11 on a 4 × 5 Speed Graphic to keep the main subject sharply outlined against a background that is out of focus but clear enough to add storytelling interest. The viewer's eye, however, always returns to the main subject since it is the only part of the image that is in sharp focus. Contrast between dark and light areas also aids the composition. Lighting was bounce flash, shutter speed 1/50 on Royal Pan film.

times essential in news photography when "grab" shots must be made with no time for focusing. The photographer simply prefocuses at his best guess at what the subject distance will be, and stops down as far as he can, under the circumstances, to get the greatest possible depth of field.

Depth of field can be manipulated to achieve desired effects in the finished print. Extreme depth of field usually enhances the feeling of depth in a picture, gives the picture greater impact. At other times, however, photographers want to make one important object stand out in the picture and this usually can best be done by a very short depth of field that throws both foreground and background, virtually everything except the main subject, out of focus. At other times the distraction of a cluttered but unavoidable background can be reduced by keeping the depth of field from extending much beyond the main subject.

Shutters

We have already seen that light striking the film can be controlled in intensity by varying the setting of the diaphragm. Exposure, however, is a product of intensity multiplied by the period of time the light is permitted to act on the film. The time factor, of course, is controlled by the shutter. Diaphragm and shutter, working together, act as a valve controlling time and amount of radiant energy flow through the lens to the film.

Until about 1900, film sensitivity and lens speeds were so low that exposures of seconds or even minutes were required. These exposures could be managed by manually uncovering the lens for the necessary time period. But as films of greater sensitivity and lenses of higher speed became available, and as photographers sought methods of getting images of moving subjects, reliable shutters which could split time into fractions of a second became essential.

Development of shutter design has led to two easily classified types of major interest to the news photographer: the front shutter and the back shutter, classified quite obviously according to position in the camera.

The Front Shutter

The front shutters on cameras ordinarily used in news photography are diaphragm shutters, consisting of usually five interleaved thin metal blades, located between the lens elements. As the shutter opens, these blades, controlled by an intricate system of gears, pivot away from the center of the lens until the lens opening is completely uncovered, stay open for a time period predetermined by the photographer, and then automatically (in instantaneous exposures) close down again. The time the shutter stays open is controlled by a delay mechanism (formed of gears, ratchet wheel, and pallet) which works much like the timing mechanism of a watch. Timing of front shutters in cameras used in press photography usually varies from 1 second to 1/400 or 1/500 of a second, plus time and bulb exposures. Because of the mechanical problems involved, speeds above 1/500 of a second have been difficult to achieve with these shutters, but in 1959 Graflex Inc. announced a new front shutter for the Super Graphic that gives a top shutter speed of 1/1000 of a second.

The Back Shutter

The back shutter is frequently called the focal-plane shutter since it is a slotted curtain that slides across the film just slightly in front of the focal (or film) plane. The back shutter may, as in the Speed Graphic, be a cloth curtain with five slits of varying width, or, as in some 35mm cameras, may be a double curtain of cloth or metal which separates to provide an exposure slit of variable width. The 35mm camera focal-plane shutters are "self-capping," that is, the two curtains lock together to form a light-tight blind over the film whenever the shutter is rewound and the film advanced. With the Graphic-type curtain, the photographer must make sure his dark slide is in place in front of the film before he rewinds the shutter; otherwise, the film will be fogged as the curtain slit is pulled back across the focal plane.

The focal-plane shutter speeds generally go as high as 1/1000 of a second and some have been designed that achieve 1/2000 of a second.

Distortion of a moving subject occasionally results from use of a focal-plane shutter. This is because the shutter does not expose all sections of the negative at once. As the curtain slit slides across the film, it will inevitably expose some sections of the moving subject later than others. To minimize this distortion, it is generally best to hold the camera so the focal-plane shutter is moving in the same direction as the subject, but even without this precaution, the distortion in most cases will be so small as to offer no problem.

Shutter Summary

The front shutter has this major advantage: Ease of synchronization with flash. Back shutters need a flat peak flashbulb (see chapter on lighting) to get even exposure over all the negative and can be used with electronic flash generally only at exposures of 1/50 of a second or more.

The back shutter offers two major advantages:

1. Its high shutter speeds will stop fast action, but new front shutter designs such as that incorporated in the Super Graphic will cancel this advantage.
2. Since it is located at the focal plane and thus away from the lens assembly, the back shutter does not interfere with lens interchangeability. This advantage has been only partly nullified by two front shutter designs. One such design fits the shutter in a between-the-lens position but allows the front element of the lens to be changed to alter the focal length of the entire lens. The other design places the shutter directly behind the lens. But the variety of focal lengths available in these two interchangeable-lens systems is not as great as that system which makes use of the back shutter.

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Lighting in Press Photography

THE IMAGES ESSENTIAL IN PHOTOGRAPHY can be created only with light. Light, the photographer must have and, light, the photographer must control. He must control light to achieve correct exposure, to create a properly defined image, and to capture the proper mood and composition.

Exposure Meters

Experience is the photographer's best insurance against failure in the area of exposure. But a bit of aid from a photoelectric meter is not to be scorned. There was a time, not many years ago, when press photographers rejected light meters as the trademark of the fussy and ineffectual amateur. Not so today, when probably more press photographers carry light meters than do not. But a light meter, like a camera, is only a mechanical device, a tool, which must be used with intelligence supplied by the photographer.

The meter basically consists of a light-sensitive element, usually selenium, which converts light into electrical energy. This energy turns a tiny galvanometer, a copper wire coil pivoted in a magnetic field created by a magnet. The amount the galvanometer moves, proportional to the light striking the selenium, is measured by a needle and scale. A meter may read reflected light or incident light; reflected-light meters are generally the most practical in press photography.

The Exposure Compromise

The best exposure is usually a compromise that will record both important highlight detail and important shadow detail in the negative image. The brightness, or contrast, range of the actual scene may be 1,000 to 1; that is, some parts of the scene may be 1,000 times as bright as other parts. Most black-and-white films will record a contrast range of about 200 to 1 and printing papers can handle a range of only about 30 to 1. Shadows in the finished print often appear much darker than they did to the eye, and shadow detail is lost; or highlights are blocked up in the negative and reproduce as blank white in the print. Sometimes our exposure compromise must favor either highlights or shadows, depending upon where the most important detail may lie.

Using the Meter

The reflected-light exposure meter will help determine the correct compromise. There are three basic methods of using the meter:

1. *The brightness-range method*—the most accurate. This involves measuring individual subject brightnesses at close range: two, three, or more areas in which detail is desirable in the finished print, ranging from important shadows to highlights. Or it may be just one measurement of the most important middle tone area, probably a face.
2. *The camera-position method.* This involves measuring the general brightness level of the scene from the camera position by simply pointing the meter at the subject, keeping the meter aimed slightly downward to avoid excessive influence of light from the sky. In this case, the meter is relied upon to strike the compromise.
3. *The substitution method.* Some nearby object is substituted for the actual subject. The meter may be used, for example, to read light reflected from the photographer's hand, with the hand

held so the light falls on it in the same way as it falls on the subject.

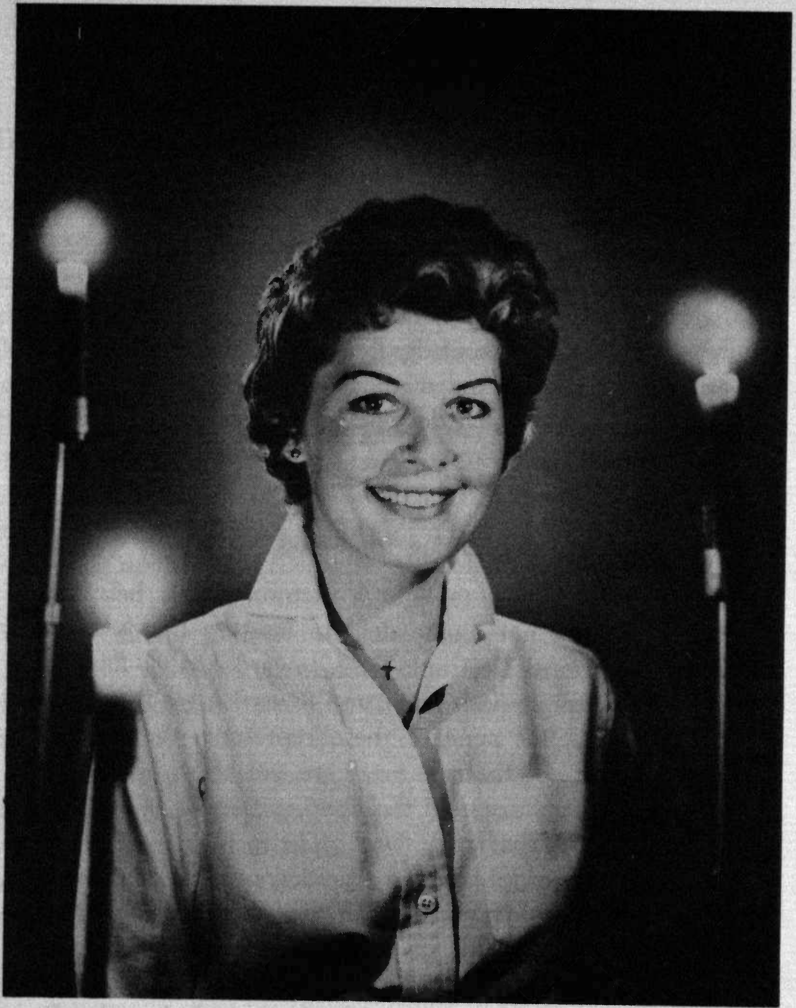
All three methods should be mastered, and the photographer should be able to relate meter readings to type of negative he wants. The meter plays the role of advisor, not dictator.

The press photographer frequently takes substitute meter readings before the news situation develops and thus is supplied with advance, reliable information on which to base his exposure settings when he starts shooting. Less often, he will be forced to shoot first and take meter readings later which will indicate whether other than normal development procedure is called for to correct for exposure errors.

Lighting for Mood

There is no one way to light a picture that is best for all situations. We can note some definite lighting trends in press photography: toward electronic flash, toward smaller flashbulbs, and smaller electronic flash units, and toward more frequent use of existing light. But none of these represents the true faith. Lighting itself is not the end result we are after; our goal is a picture that tells a story, and the lighting should, as far as possible, help us reach that goal.

The mood or atmosphere of a situation may be as important, perhaps even more important, than the subject itself, and this mood or atmosphere can be photographically communicated largely through the way the picture is lighted. Various factors affect the mood message conveyed by light, including the direction of the light, its intensity, its source, and the surfaces from which it is reflected. Compare the lighting on a given scene at high noon and at sunset. Here the variables are direction, intensity, and, from the photographic viewpoint, source. Although source is apparently the same, it has actually changed, since the



Floyd H. McCall, *The Denver Post*

Made with the light of four candles this picture illustrates multiple lighting. At right is the key light; left front is the shadow fill light; left rear, high, is the backlight for highlights on the subject's hair; fourth candle was directly behind the subject to separate subject from background. Speed Graphic, 4 × 5, Royal X Pan film, exposed at 1/10, *f*/4.5, and developed 11 minutes in fresh DK60a. This same basic lighting setup, or variations of it, can be used with flash or floods.

quality of sunlight at noon is not the same as sunlight at sunset; it's largely a matter of a change in the light's color. The fourth variable is also involved since light at sunset may involve reflection from horizon-hugging clouds, while the light at noon involves a large proportion of intense reflection from a blue sky.

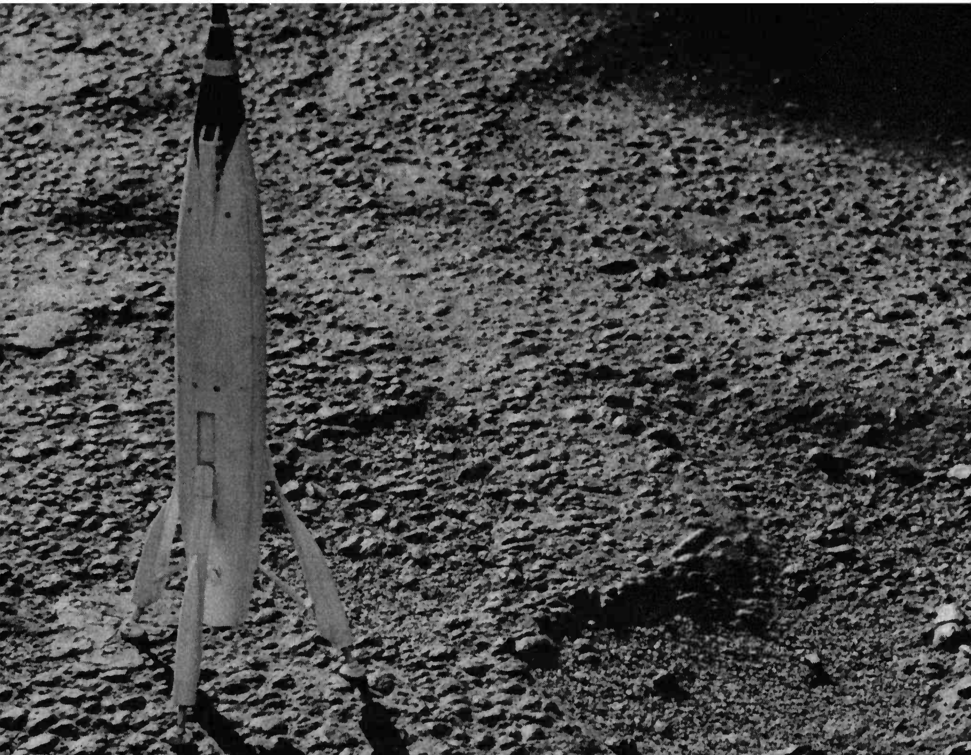
Also compare a room lighted by overhead fluorescent lights with the same room lighted by candles. Note the effect lighting has on an overcast or misty day; the way a scene changes when a direct light source is switched from a head-on position to a low-skimming sidelight; when a diffused light is substituted for a direct light; when a subject moves from direct sunlight into open shade; when wet pavement is added to a night lighted street scene. Note the weird, hobgoblin effect of light held at or near floor level and aimed up at the subject.

The variations in lighting moods are infinite. When natural or existing light falls short of photographically useful levels, the observant photojournalist adds his own light sources, but in such a way as not to destroy the atmosphere created by the existing illumination. Thus, he may place a bare flashbulb (no reflector) just in front of a candle and the lighting result will be largely the same as he would have gotten had he been able to shoot with just the candlelight.

Feelings of drama, mood, and depth can be conveyed in pictures taken under what are generally considered undesirable shooting conditions. Fog, haze, smoke, or dust may be an integral part of the picture's story, and the photographer often attempts to capture the atmosphere these conditions create.

The Press Photographer Outdoors

Indoors, in a well equipped studio, the photographer has maximum control over light; he can intensify it or reduce it, concentrate it, disperse it, feature it, pattern it; he can use one light source or a half dozen in precisely controlled balance. Outdoors



John Lee, formerly with *The Denver Post*

A low side or backlight will emphasize texture and add drama. The space ship is actually a model only 11½ inches tall; the desolate terrain was a small section of a Denver, Colo., boulevard in need of repair.

his controls are considerably lessened. It is much more difficult to get dramatic lighting effects outdoors, but news photographers cannot be fussy about working conditions; they must meet the challenge posed by whatever light exists. Intense direct sunlight, which can reach 10,000-foot candles or more, tends to be harsh and domineering, while the light of a dreary day may be only 1,000-foot candles and is flat and lifeless. Still the photographer is not without his resources; he need not bow to outdoor light as a complete dictator.

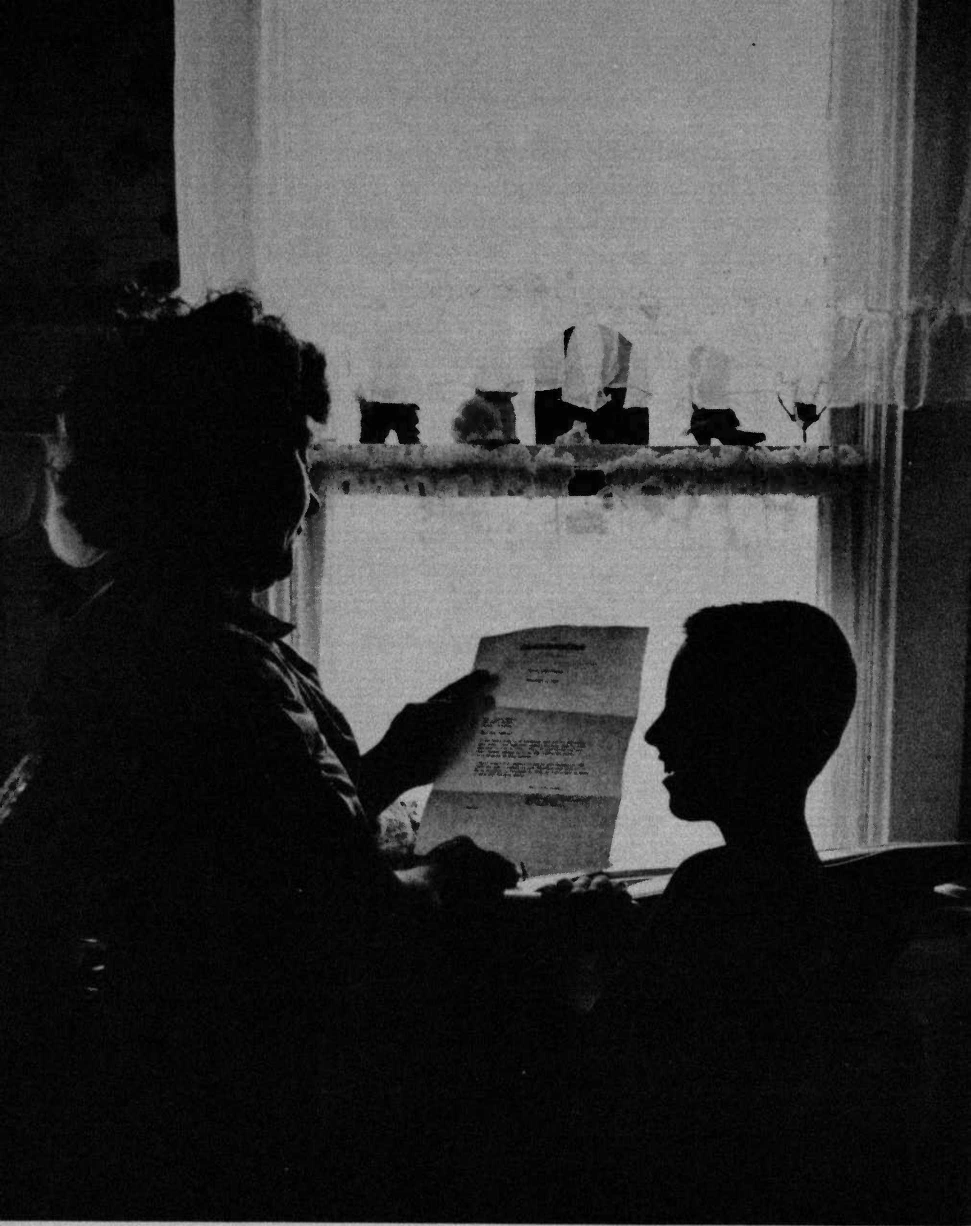
Basic Kinds of Outdoor Light

There are four general and basic kinds of outdoor light:

1. *Frontlighting.* The sun is somewhere within approximately a 45-degree arc behind the photographer. The result is flat illumination; shadows are cast away from the camera, are often hidden behind the subject; the light works against our attempts to create an illusion of volume, space, and depth. Frontlighting, however, generally gives the best rendition of subject color when we're working with color film, and is sometimes effective in black-and-white for emphasizing lines and planes. A variation of frontlighting is what might be called top lighting, the light at high noon. It's generally to be avoided whenever possible unless our purpose is to create a mood of lassitude, the siesta atmosphere of a hot summer day.

2. *Sidelighting.* This kind of light is generally unspectacular but reliable. It's a great help in emphasizing shape, volume, and texture; it gives us a chance to utilize interesting shadow patterns in composition. In the extreme, with the light very low, it can produce dramatic effects.

3. *Backlighting.* The sun is more or less behind the subject. This is the most dramatic type of lighting, and it offers maximum opportunity for depicting that intangible—mood. But it's also the most difficult to use successfully. Deep shadow areas on the



Bill Johnson, *The Denver Post*

Backlighting placed the emphasis where the photographer wanted it for a story about a home in which gas and electricity had been turned off.

side facing the camera, which may be so intense as to create an actual silhouette, can pose tough problems with the coarse dot structure of halftones made for reproduction on newsprint.

Both sidelighting and backlighting are most effective when self-explanatory, when the source of light is obvious. A sunshade on the lens is a must and this can often be supplemented by the photographer's hand or body or by the shadow of other persons or objects near the photographer.

4. *Diffuse Lighting.* This form of lighting lacks one strongly centralized source, is soft and low in contrast. Outdoors it occurs on overcast days, in the shade, or just before dawn and after sunset. Generally, it's a good form of lighting for closeups and portraits.

Filling in Shadows

The press photographer often faces excessive contrast in outdoor shooting—the shadows are too intense under the subject's hat brim; the spread in brightness range from important shadow detail to highlights is too great for the film to encompass. A possible answer here is to throw more light into the shadows, fill them in. This we can do with flash or with reflectors. Flash is the most practical for the press photographer whose need for maneuverability requires a minimum of equipment encumbrance.

Flash Fill. The danger here is overdoing it; too much light from the flash will destroy the shadows and the result is flatness and an unnatural lighting effect. The flash should be used at or very near the camera for fill-in, since the objective is to lighten existing shadows, not create new ones. Each photographer must work out his own flash-fill technique to fit his own purposes, equipment, and film, but in general the intensity of the light from conventional flashbulbs can be reduced to about one-half or less of daylight by draping a white handkerchief over the reflector when the flash is 6 to 10 feet from the subject. When the flash is about 15 feet from the subject, no reduction of the light should be necessary.

In using electronic flash as a shadow fill, we can rely on the extremely short duration of the light to get a proper balance between sun and flash, since lens aperture can be used to control the amount of light from the flash that reaches the film, and shutter speed (in front shutter cameras only) can be used to control the sunlight. For example, assuming that the correct exposure for the sunlight is *f*/11 at 1/200, we can shift to *f*/22 at 1/50 and the exposure by sunlight will remain the same, but exposure from the flash will be cut to one-fourth.

Reflectors. Advertising, industrial, and fashion photographers sometimes work outdoors with reflectors—boards covered with matte white paint or with crumpled aluminum foil—to bounce the sunlight into shadow areas. These are generally impractical under the circumstances in which news photographs are taken, but the principle is one that can be utilized on occasion. A camera viewpoint sometimes can make use of natural reflectors at the scene; a white or light-colored building wall, concrete paving underfoot, an expanse of sand or water.

Form, Texture, and Depth

Natural rendition of form and volume appears in the photograph if the light comes from above and to one side. Whenever possible, the photographer will maneuver to get the sun to one side of his subject to aid the illusion of three dimensions in the photograph and to separate his subject from the background.

Low skimming side light from late afternoon or early morning sun will emphasize texture, often needed for a satisfactory picture of a body of water or a grain field. A low sidelight gives full illumination of elevated parts and deep shadows in depressions. Generally, it is advisable to shoot for high contrast, maximum sharpness, and maximum depth of field.

A feeling of space can be imparted by a photograph which represents zones of depth through shading, with the immediate foreground shadowed, the middle distance lighter, and the far distance still lighter. Backlighting is often most effective for this, but sidelighting will create similar zones of depth when the cameraman is alert to viewpoints that take advantage of large foreground shadow areas. Some of this depth through shading can be acquired through controls used in the darkroom when the print is made.

Albert Moldvay, *The Denver Post*

The photographer's knowledge of tools and technique made possible this shot of a motorist, his car in a ditch, attempting to summon aid.

Available Light

Available light consists of whatever sources of illumination exist at the scene when the photographer arrives: light of a match, a 25-watt incandescent bulb, headlights of a car, a bank of fluorescent lamps, floodlights of a stadium. In press photography, available light is used not as a *tour de force,* to show what can be done, but to help tell the story, to retain the mood and atmosphere of the original scene, to emphasize the humanistic aspect of photojournalism by interfering as little as possible with the scene in front of the lens.

Available light photography is not new. Erich Salomon used this technique to photograph the private conversations of diplomats at Geneva in the late 1920's. In the 1920's and 1930's, working with what today are considered slow films and slow lenses, news photographers took available light pictures in courtrooms. Shooting in existing light became something of a fad in the late 1930's for amateur photographers using the then relatively new miniature camera. But it represents no fad or passing style for the photojournalist today. Masters in the field have demonstrated the value of available light technique in getting the unobtrusive, intimate eyewitness photograph.

A fast lens and fast film provide no easy route to candid pictures. The photographer needs other "equipment": acute observation, speed in decision making, complete familiarity with his camera, and ability to edit with his viewfinder. He must be able to recognize when the available light makes photographs for newspaper reproduction possible. Dark prints that might be dramatically effective reproduced on the slick, coated paper of a magazine may appear only as a coal-bin smudge on newsprint.

Exposure meters are vital in available light photography. Photographers often become expert in judging exposures without a meter in familiar situations, but in the unfamiliar, a meter may mean the difference between success and failure. But even meter readings must sometimes be modified on the basis of experience. Available light is often contrasty and it may be advisable to open up a half to a full stop beyond what the meter suggests to hold detail in important shadow areas. If the scene is low in contrast, then closing down a half stop may help. All shots on a single roll of film should be given the same basic treatment in exposure since it will all be developed at the same time. On a fast-moving assignment the news photographer frequently has to decide on a basic exposure quickly and then begin shooting, modifying the exposure as the lighting seems to change for different camera viewpoints. He will also make use of any surfaces available which will serve as reflectors: white table cloths, mirrors, light colored walls, large pieces of white cardboard or paper, even a man's white shirt, to throw a bit more light into the shadows and reduce the excessive contrast so often characteristic of available light pictures. A small amount of reflection may keep eye sockets from going black with heavy shadow.

The photographer must decide whether to shoot with available light or to add flash as he faces each situation. Pictures are not necessarily supreme merely because they were taken with available light. The camera reporter must ask himself such questions as: "What is the result wanted? Are mood and atmosphere important here? Will flash make the camera too obtrusive, destroy the spontaneity of the scene? Does this shot require stopped action, a sharply detailed image?"

Lighting with Flash

Invention of the flashbulb in 1929 revolutionized press photography. It meant the photographer could carry his own light with him anywhere, and gave him a control that meant not only greater assurance of getting the picture, but less frequent calls for ambulance and fire department.

The flashbulb succeeded the magnesium flare and the flash pan. With the magnesium flare, a sort of blow gun, the photographer blew through a hose connected to the handle of a metal torch. Lung generated air pressure forced magnesium powder into a kerosene or alcohol flame and the result was a miniature volcano which provided enough light to take a picture, if the photographer had remembered to open the shutter and pull the dark slide. The flash pan was a slight improvement. A powdered mixture of magnesium, potassium chlorate, and antimony sulphide was sprinkled along the length of a narrow pan which the photographer held over his head. A spark set off the powder to give an explosive flash and a more pleasing, diffused light than the flare. But the flash pan was about as dangerous as the magnesium flare and as difficult to control. A number of press photographers were seriously injured, some losing their hands in flash powder explosions, and this led to a ban on the powder's use by some papers.

Then Johannes Ostermeier of Germany put thin aluminum foil and oxygen in a glass bulb with a small screw base to fit hand flashlights. The photographer now had his light under control, usually, unless the bulb exploded. Improvements quickly followed. Flashbulbs became smaller, more efficient, less likely to explode. Ways were found to synchronize the flash with the opening of the shutter and to integrate flash and camera in one compact unit. Then, less than ten years after introduction of the flashbulb, came electronic flash for photography, developed about 1937 by Dr. Harold E. Edgerton of the Massachusetts Institute of Technology. This freed the photographer from the burden of carrying a supply of expendable flashbulbs and gave him a light of such brief duration he could stop a bullet in midflight.

Conventional Flashbulbs

The most important factor in using any flash is synchronization; the camera shutter must be open when the light reaches its peak. This is accomplished for instantaneous exposures through internal electrical contacts in the shutter mechanism or through a solenoid. Whichever form of synchronization is used, it must be keyed to the class of flashbulb being used, and flashbulbs divide into four classes: *F* (fast peak), *M* (medium peak), S (slow peak), or *FP* (flat peak). *F* bulbs reach peak light output in 5 milliseconds; *M* bulbs in 15 to 20 milliseconds; S bulbs in approximately 30 milliseconds. The *FP* bulbs have a "flat" peak so the light is relatively constant for enough time for the focal-plane shutter to move across the film.

To determine exposure with flash, the photographer simply decides upon a shutter speed, then refers to charts provided by bulb manufacturers. From the charts, he can find a guide number based on the shutter speed and the ASA tungsten exposure index or the new ASA speed value for the film he is using. (If the photographer is using the new ASA speed values for films, he will find that tungsten ratings for panchromatic films are no longer listed because the response of most meter cells to the various colors of light is so close to the response of pan film that the same film speed numbers can be used with all the usual types of light sources. Under the old system of exposure indexes, the tungsten exposure index for nearly all black-and-white films was lower than the daylight index. This was intended to compensate for the fact that tungsten light has a greater proportion of red light.)

Having found the guide number, the photographer simply divides it by the number of feet between flash and subject. The result is the *f* number.

The guide number is only a guide, although a reliable one; photographers must learn to adjust flash exposures for varying conditions of reflectors, picture subjects, and reflecting surfaces around the subject. Increased exposure is needed outdoors at night or in large, dark interiors.

It is advisable to standardize on one type of flashbulb, one film, and one shutter speed for most flash pictures. Then the guide number remains always the same and after a little experience even the arithmetic becomes unnecessary; the photographer can almost automatically set the correct *f* number for various distances between flash and subject.

Electronic Flash

The guide number system has been adapted to electronic flash units or speedlights as well, with the guide numbers generally being supplied by the manufacturer of the speedlight for various film speeds. The photographer, however, will find it worthwhile to make his own exposure tests to determine if the recommended guide number is the correct one for his camera and for the type of negative he wants. Intensity of the light from the flash, conventional or electronic, falls off at twice the rate of the increase in distance. If distance is doubled, intensity of light from the flash is quartered. Thus, just as with relative aperture, we are dealing with the square root of two. Multiplying the guide number by 0.7 will give one full stop more exposure, and multiplying it by 1.4 will give one full stop less exposure. If you double the guide number, or cut it in half, you've made a two-stop change.

The generally accepted yardstick for measuring the effectiveness of speedlights is now effective candle-power seconds (*ECPS*), which is an attempt to include in the rating a measurement of light thrown near the borders of the picture area as well as light on the center. If the *ECPS* of a flash unit is known, the guide number with which to begin exposure tests can be determined by taking the square root of .063 × *ECPS* × ASA exposure index for the film being used. The *ECPS* rating is determined by tests made by the manufacturer.

Speedlights offer two major advantages over conventional flash:

Economy. Exposures with conventional flash will cost 12 to 18 cents per flash, while exposures with speedlights will cost from 1 to 1.5 cents per flash. When one newspaper converted to speedlights a few years ago, supplying each photographer with two flash units (one a "slave"), it discovered the electronic flash units paid for themselves in about eight months.

Action-stopping light. With speedlights duration of the flash will run from about 1/400 of a second up to 1/30,000 of a second (some specially designed units even much higher). For press photography a flash duration of 1/1000 to 1/2000 of a second is recommended. This speed is enough to stop most action the photographer will encounter, relieving him of worry about shutter speed—except to make sure that shutter speed is fast enough to avoid a "ghost" image, a second image recorded by existing light. "Ghost" image elimination is only possible with a front shutter camera, because the curtain shutter camera is limited to 1/50 second with electronic flash.

In electronic flash units a little extra initial expense may mean significantly increased serviceability and a more even light distribution. In speedlights uneven light sometimes shows up as a "hot spot," concentration of light near the center of the negative. Another important factor in electronic flash is recycling time—how long does it take the unit to recharge? A high-voltage battery-operated unit such as the Heiland 72-A will recycle in 2 to 5 seconds while the low-voltage battery units usually require 18 to 20 seconds, enough to cost a photographer good pictures on spot news or sports assignments. The high-voltage battery units pull minimum current during waiting periods between shots; they can be left turned on so the photographer is always ready. Light output of the strobe light is also important, but often overemphasized. Almost any of the small (50 watt seconds or so) units give plenty of light for today's films.

Using Flash

There was a time when anyone taking pictures with flashgun attached to the camera was almost automatically assumed to be a professional. Today just the opposite is true. A photographer who consistently shoots with one flash on the camera is either a beginner or a person who has not seriously considered light as an aid to composition and realism.

A flashgun left attached to the camera results in flat pictures (no illusion of depth or volume), with shadows, if visible at all, thrown in sharp, disturbing, and unnatural patterns directly behind the subject. This flash technique tends to produce negatives of high contrast, with overexposed foregrounds and underexposed backgrounds, which are difficult to print. Flash on camera is sometimes used in "grab" shots or to get a harsh, stark picture, but usually other techniques are preferable.

Flash off Camera. This is an excellent technique to use for closeups (eight feet or less) with one flash at the camera. The flashgun is detached from the camera and held at arm's length, high and to one side. The reflector is aimed downward at the subject. This gives better modeling, greater feeling of depth, and more even lighting. At distances greater than eight feet the advantages are considerably lessened, since the angle of the light is reduced.

Multiple Flash. There are undoubtedly more than a thousand variations in multiple flash (using more than one flash on a single picture). Only experience can guide the photographer in selecting the right combination for any given situation. But one of the most effective and simple techniques in press work can be defined as "equal and opposite" lighting. Here two flashbulbs of the same size and in identical reflectors are placed on opposite sides of the subject. With one flash in front of the subject at the camera position and another behind the subject, separation is achieved between subject and background, form is emphasized, and the frozen effect of many flash shots eliminated. The second flash may be either on an extension cord or it may be a "slave" unit, which is fired by an electronic eye "reading" the flash at the camera. The second light can be either held by an assistant (the reporter of a reporter-photographer team or a bystander) or some extensions come equipped with clamps so that the lamp can be quickly fastened to a light stand or to a convenient curtain rod, light fixture, or furniture. If the background is dark, get the backlight up close to achieve maximum edge lighting to separate the subject from the background.

"Triangle lighting" is another effective technique. The photographer keeps one light at the camera position, then places his second light high and to right or left halfway along the hypotenuse of an imaginary triangle with the subject at the 90-degree angle of the triangle. The extension or slave light should be on the opposite side of the camera from the camera light and should be held high. This extension light is the key light; it should be closer to the subject than the camera light and thus its distance from the subject is the one used in determining exposure. The camera light is a fill light; it fills in the shadows cast by the key light. Since both lights are aimed at the front of the subject, however, it is usually advisable to reduce exposure one-half to one full stop from the *f* number indicated by dividing key-light distance into guide number.

The photographer who learns how to use two lights can confidently add a third and even fourth light if he has learned what lights at front, sides, and back will do.

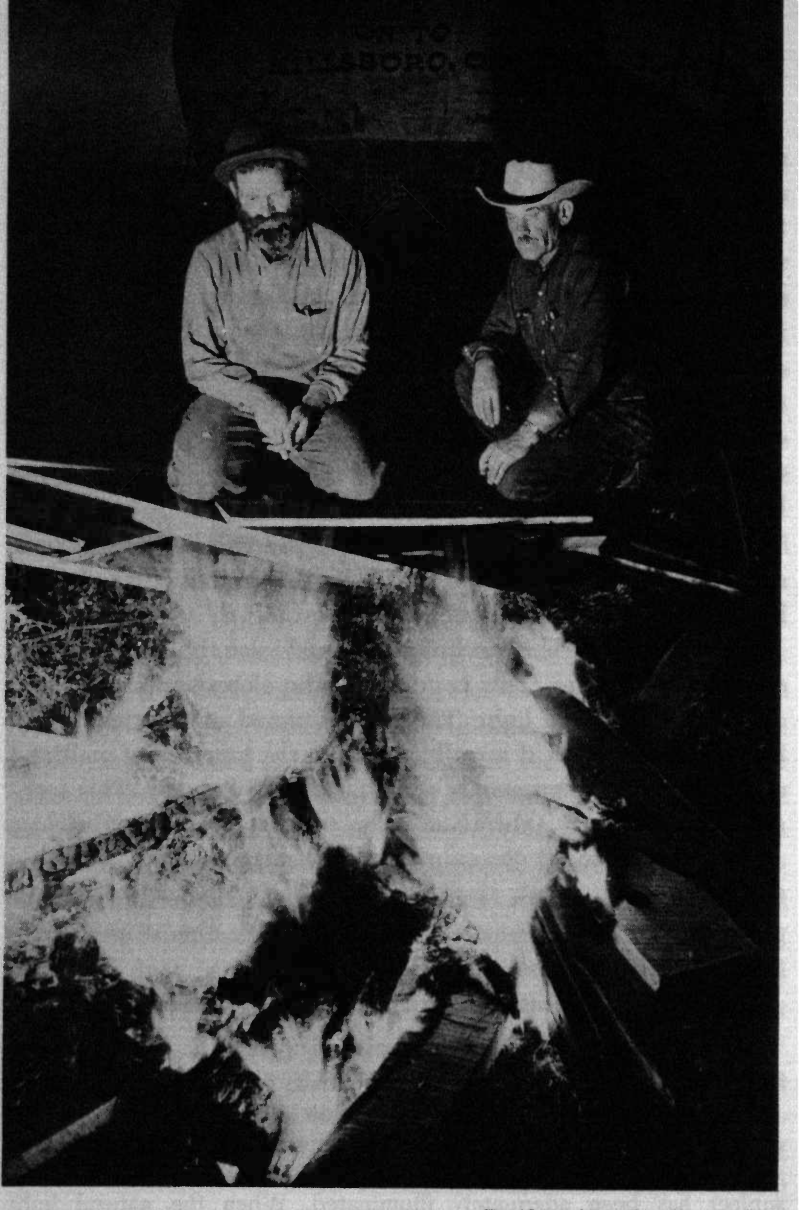
Bounce Flash. This technique should also be mastered by every photographer. This is generally the closest approach flash can make to natural light. The flash is aimed not at the subject but at the ceiling or, if a wall is close, at the juncture of wall and ceiling. This gives an evenly spread, diffused lighting. This technique is best used only when ceiling and walls are fairly close and are light colored. Exposure can be determined by estimating the distance from flash to ceiling to subject. Divide this into the guide number and open up one more stop. It's almost impossible to overexpose with bounce flash.

Variations. Some usable variations of flash technique include:

Using a handkerchief over the reflector to soften and diffuse the light. This will cut the light about one-half; so open up one stop.

Using "open flash" by setting camera on a tripod, opening shutter, pulling dark slide (if there is one), and then firing as many flashbulbs as you wish from whatever positions you wish until you believe the subject has been adequately illuminated. When the natural light level is low, the photographer can move freely about the scene without being recorded on the film if he has dark clothing on.

Using a bare bulb (no reflector) for diffused light and more even lighting of background. Open up one stop.



David Mathias, *The Denver Post*

Flash was used to get this picture, but the light the photographer added (one electronic flash unit, low and to the left of the camera) did not disturb the mood created by the light of the fire. Realism was retained but enough light added to get the picture.

For flash shots, tight compositions are generally desirable. Watch out for black backgrounds that merge with the hair of the subjects; watch for reflections from eyeglasses. Light will be reflected from the glasses at the same angle at which it strikes. If the flash is held high and/or the subject is not looking directly into the lens, there should never be reflections.

Filters

Colored filters are used in black-and-white photography to change the response of the film to various colors. The filter will absorb light rays of some wave lengths (colors) and allow others to pass through. Filters do not add anything to the light; they merely subtract.

For Correction and Contrast

Color brightnesses are not the same to eye and film. The eye is most sensitive to green and yellow; the film is exceptionally sensitive to violet and blue. To bring the response of the film closer to that of the eye, we must eliminate all or most of the ultra-violet (which the eye does not see at all) and much of the violet and blue. A filter is the same color as the wave length it transmits, and complementary in color to the wave length it absorbs. For correction, we want a filter that will transmit green, yellow, and red, but absorb much of the violet and blue. The obvious answer is a yellow filter.

Then filters are also used frequently to build negative contrast. Red and green of the same luminosity will record on panchromatic film as almost the same tone of gray. To build contrast between the two colors, we must brighten one and darken the other; this can be done with a red filter. The basic principle of filtering, then, is simple: to brighten a color and thus increase film recorded detail in areas of the subject in that color, use a filter of the same color; to darken a color, use a filter of complementary color.

Useful Filters

Three filters seem especially useful in press photography: the medium yellow, the orange, and the light green. The yellow filter darkens and dramatizes a blue sky, builds approximately correct contrast between white clouds and blue sky, and also minimizes skin blemishes in portraits. The orange filter darkens a blue sky even more, gives dramatic sky-cloud contrast, and will cut through haze (but not smoke) to a noticeable degree. A green filter is excellent for many scenic shots, increasing foliage detail, darkening the blue sky, and at the same time giving good rendition of skin tones.

Many photographers like to have other filters in their kits, including a red to gain extreme contrast and greater haze penetration, a neutral density filter to cut down all wave lengths when using high-speed films outdoors, and a polarizing filter to control reflections and glare from glass, water, and other nonmetallic objects.

Filter Factors

Since filters subtract or filter out part of the light rays, obviously less light is reaching the film. For this reason, filters are assigned numbers called filter factors. A medium yellow filter used with panchromatic film has a filter factor of 2; this means we must multiply the normal (no-filter) exposure by 2. To get correct exposures, the photographer must know the factor of the filter he is using.

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The News in Color

WHEN AN AIRLINER CRASHED ON takeoff in pre-dawn Minnesota darkness in 1958, the first newsman on the scene was *Minneapolis Star* photographer, Wayne Bell. He shot a picture that appeared on page one of the *Star*'s early (11 A.M.) edition that day in the customary black and white. Two hours later, the *Star*'s home edition appeared with the same picture in full flaming color. The color version was at least 1,000 words better than the black-and-white version, but the words to describe the difference are not available in the dictionary. Said Art Hager, staff photographer and color coordinator for the paper: "That funny orange-colored film did it again. We had less trouble with this job than we do with jobs when we've got all the time in the world."

The *Minneapolis Star* photographer shot his picture on negative color film. The *Star* used a black-and-white print made from the color negative for the early state edition. Before the home edition went to press, the same color negative had been used to produce color separation prints from which color engravings were made—a relatively simple process, but not an easy one.

On Thanksgiving Day, 1959, *Denver Post* photographer, Ira Gay Sealy, covered a football game between the University of Wyoming and the University of Denver with a Hulcher 35mm sequence camera, battery-driven. The camera was loaded with 100 feet of Hi-Speed Ektachrome, which Eastman Kodak designed for positive color transparencies. But it was developed as negative film in the *Post*'s color lab. Then, four of the 35mm frames were selected to tell the story of one play. The newspaper's color specialists cropped the negatives by actually cutting them with a knife to leave only that portion of each picture which would appear in the newspaper and then mounted the negatives on glass in a layout arrangement. The color separations were made as one picture. The sequence ran the next day in color across the eight columns of page one, beginning with the 11 A.M. edition.

These two anecdotes may seem like reports of mere stunts, but production of full-color news pictures is no longer merely a stunt for these two newspapers or for a few others in the United States. More newspapers, large and small, are joining the color parade each year and today's news photographer can ill afford to ignore the revolution that appears to be well underway—a revolution that is adding an exciting new dimension to pictorial coverage of the day's spot news.

The Color Revolution

The search for ways to print full-color pictures began before 1900. In the 1890's several papers were experimenting with spots of color on page one to commemorate special events. The *New York Journal* reproduced some of Frederic Remington's Cuban sketches in color in 1897. But experimentation with color printing in the first half of the twentieth century was left largely to magazines and the comic, rotogravure, and magazine sections of newspapers. In February, 1926, the *Saturday Evening Post* published its first cover in full color and in the early 1930's, cheap, but good, color film became available. Magazines pressed ahead in the search for ways to reproduce color and soon were promoting sales on claims to so many color pages in each issue. Today the color-filled magazine is commonplace.

In the 1940's, the switch to color swept through the movie industry. In the 1950's, color television arrived. Black-and-white symbols of reality seem no longer enough in a color-conscious world.

Advertisers provided the push that brought widespread use of color in magazines and newspapers. To get that increased, eye-catching appeal, advertisers could well afford to take months to prepare excellent printing plates from positive color transparencies. The results stole the show from the editorial copy. So editors were stimulated to produce color pictures for editorial use. In the color revolution, magazines had one distinct advantage over newspapers: magazines could begin preparations on a particular color shot weeks, even months, before publication deadline. Magazines had other advantages as well in coated paper and better inks.

The Newspaper Problem

Advertisers, sold on the impact, power, sparkle, and freshness of the full-color sales message in magazines, inevitably began to ask the same of newspapers. So by 1950 many newspapers were offering their advertisers ROP (run-of-paper) color. A newspaper which offers ROP color signifies it can print color pictures or advertisements on several pre-designated pages of the daily newspaper.* If advertisers could be offered ROP color, newspaper editorial departments asked, why can't we have news photographs in full color? This presented quite a challenge, because there seemed to be no practical way to produce color at the speed demanded by news deadlines. And the deadline is only one of the problems. There are engraving, stereotyping, paper, ink, and press registration problems. The remarkable thing is that color pictures can be printed at all on high-speed newspaper presses at 42,000 to 60,000 copies per hour, with brownish-gray, blotter-like newsprint that swallows half the beauty and purity of color.

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* The controlling factors are the total number of pages, the number of sections, and the route of the paper threading through the presses. Modern press equipment will permit color printing on an increased number of pages in a single issue.

To produce full color, remember that the printer needs one plate for each of the primary colors, which in printing are yellow, red, and blue. In addition, the traditional process called for a fourth printing plate from which black ink was printed. But newspapers which have turned to negative color have found, with improved inks, they can get good reproduction with only the yellow, red, and blue plates. Theoretically, these three in combination will give all other possible colors.

The key to the problem of newspaper editorial color appeared to lie in the way in which the colors were separated—the way in which the yellow values were extracted for the yellow plate, the reds for the red plate, and the blues for the blue plate. By 1958, newspapers had experimented with three different methods of achieving the necessary separations.

The Positive Transparency

The traditional method (if anything in the fast-changing world of color reproduction can be called traditional) used the positive transparency produced from reversal color film, film which in processing is reversed from a negative to a positive. Normally, by this method, the engraver makes the color separations.

With the positive transparency, the color quality is excellent, but after the rather lengthy and critical film-developing process, which in some cases is done in only specially equipped labs, it still takes engraving plants another period of many hours, in some cases, days, to make good color separation printing plates. With advertising copy, which can be in preparation for weeks and sometimes months, this is possible. Even for magazine editorial copy, it is feasible, but for newspapers that want to produce today's news today—today's color pictures today—it is obviously impractical.

One-Shot Color

Convinced that transparencies offered no route to everyday color news pictures, many newspapers turned to another system based on the Curtis one-shot color camera. This system is faster than separating transparencies, because, as the name implies, the three-color separation negatives are made with a single exposure by the photographer, not by the engraver. The camera holds three negatives, one directly behind the lens, and one at each side. By a system of pellicle mirrors and filters, the yellows of the scene are recorded on one negative, the reds on another, and blues on the third.

After development, each of the three negatives is masked for color correction, and from the three negatives and matching masks enlarged bromide (black-and-white) prints are made. No actual color is involved in the developing and printing. The prints are placed in an optical device called a Curtis Color Analyst which reunites the color values that the photographer's camera separated. Looking through a viewing slot in the analyst, the photographer sees his three black-and-white prints fused back into a full-color image because the light reflected from the prints travels to his eyes through colored filters.

From study of the image in the analyst, the photographer can determine if his prints are properly made to give accurate reproduction of the color in the original scene. If the analyst shows the color balance is incorrect, corrections can be made before the prints go to the engraver. The engraver simply makes angled halftone negatives from the three prints. The halftone negatives are then used to make the usual printing plates: one will print blue, one red, and one yellow.

Negative Color

The next important step toward full-color news pictures came in September, 1957, when Eastman Kodak introduced an experimental panchromatic paper called KIND 1439. With this paper, color separation prints could be made from Ektacolor or Kodacolor negatives. Pioneering work on a number of newspapers with this experimental paper demonstrated that here was a system that worked. Some changes were made in the paper and the result was put on the market in 1958: Kodak Resisto Rapid Pan paper.

In 1958, at least 12 newspapers were using negative color film with the new paper. The film usually used is Kodak Ektacolor Type S, which takes substantially less time to develop, wash, and dry than any of the currently available positive color transparency films. The developed film is put in the enlarger in the usual way. But the darkroom worker successively interposes three gelatin filters between negative and panchromatic paper for making the separation prints. The No. 92 red filter makes the blue printer (the print from which a halftone engraving will be made to print the blue ink on the press); the No. 99 green filter makes the red printer, and the No. 47B blue filter makes the yellow printer. The filters are complementary in color to the color being printed because we are making a positive from a negative in which colors are recorded as the opposite of (complementary to) the colors in the original scene. Variations in exposure, developer (Dektol and Selectol Soft), and developing times for the three prints will produce a set of balanced separation (black-and-white) prints. Variations of contrast can be controlled by lifting the correction mask for part of the exposure.

Correction masks are needed, just as they are with the positive transparency or one-shot camera systems. This is because inks used on newspaper presses give unwanted "undercolor": too much red under the blues and greens, too much yellow under the reds, blues, and violets. The masks subtract this unwanted color and also reduce the contrast in the separation prints. The masks are made by projecting the color-negative image on pan masking film; the developed result is a film positive. Since the negative stays undisturbed in the enlarger while the masks and prints are being made, the correction masks are made as overlay masks on the easel and are registered over each print through the use of a Kodak dye transfer register board and punch. Film and paper for each mask and each print is first punched and then positioned by means of the punched holes in the register board for exposure. Thus, when the mask is placed over the paper to subtract unwanted color, mask and projected image are in perfect register.

The prints can be checked in a Curtis Color Analyst, same as the one used with the Curtis one-shot camera, for correct color balance. Then the prints are sent to the engraving department where the three plates are made. The need for three separation negatives is eliminated.

Negative Color Advantages

The color-negative system appears to offer five major advantages:

1. From the photographer's viewpoint, it puts color-picture production in the same class with black-and-white pictures. Develop a negative and make three prints, instead of one. It takes 53 minutes to develop the negative and from 45 minutes to one and one-half hours to make the correction masks and three prints. In one case, Jim Godbold, former *Minneapolis Star and Tribune* photographer, made a set of masks and prints in 30 minutes.

2. The negative system costs less than half in man-hours and materials what it costs to separate and correct a positive transparency.

3. Negative color film, like the reversal film from which we get positive transparencies, makes a color camera out of any good camera, from 35mm on up. Of course, the camera lens must be color corrected.

4. Negative color can be printed with any good enlarger. However, an enlarger in which the quantity of light can be tripled or quadrupled will speed up the process and give better control of printing exposure. A better than average enlarging lens is necessary; it must have no chromatic aberration. All three prints

should be sharp. Some lenses make only the red and yellow images sharp, while the blue print is soft.*

5. Negative color (Ektacolor Type L) can also be used to make successful color copies of paintings or drawings and, in addition, works well as an internegative in reproducing 35mm or larger positive transparencies for ROP color.

Negative Color Control

Subject and color composition cannot always be arranged ideally before the shutter snaps. Improving the composition by darkroom manipulation can usually best be done by the photographer who shot the picture.

Photographers who have shot color pictures that were "setups," with the opportunity to choose camera angle, arrange lighting and subject for composition and color separation, have often wished the model had on a different colored dress or blouse, or perhaps that the background was a different shade so the subjects would appear to stand out from it, instead of "sticking" to it.

With positive color transparencies to be separated by a lab man or mechanical engraving department, the photographer is limited to the controls available on the set. He will get just what he turns in. Few lab men or engravers, who are busy pushing all the pictures they can through to completion, have the interest

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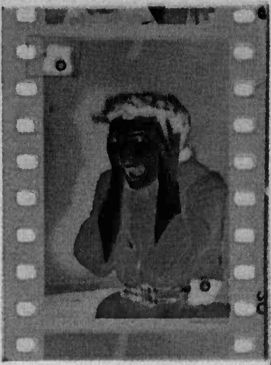
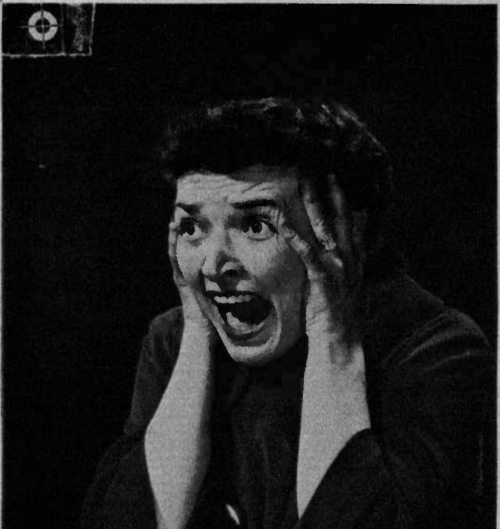
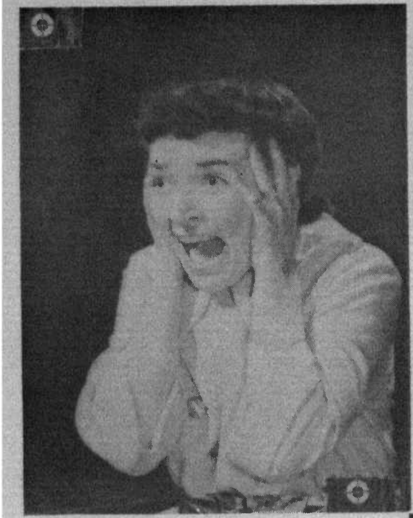
* When soft focus blue printers persist, the lens on the camera should be questioned. There is considerable variation in the degree of color correction in various lenses. When light waves of different lengths pass through a lens, they are refracted unequally. The short blue rays are refracted more than the long red rays. Not all lenses have been fully corrected for this chromatic aberration. A lens can be checked for color correction by comparing blue, red, and yellow printers made from a negative from that lens. It must be remembered, however, that there are two variables here: the color correction of the enlarging lens and the color correction of the camera lens. One of them should be of proven quality. The authors have found that the color correction of the Leitz Summicron lenses manufactured since 1956, the Retna lenses, and some of the Schneider lenses for 4 × 5 are excellent. No discrimination against other lenses is intended, but these lenses appear to have proper color correction for good color pictures. This unsharp blue printer is not peculiar to the color negative system, because this same blue printer unsharpness has often been noted by engraving departments when separating reversal positives.

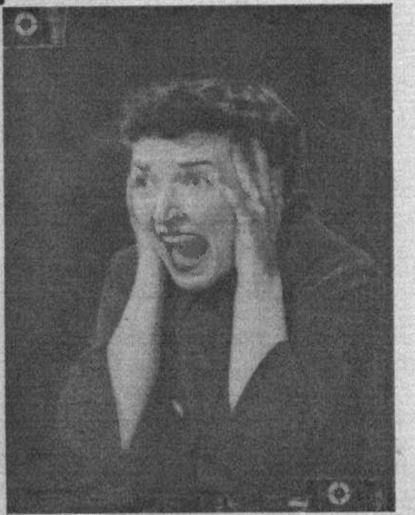




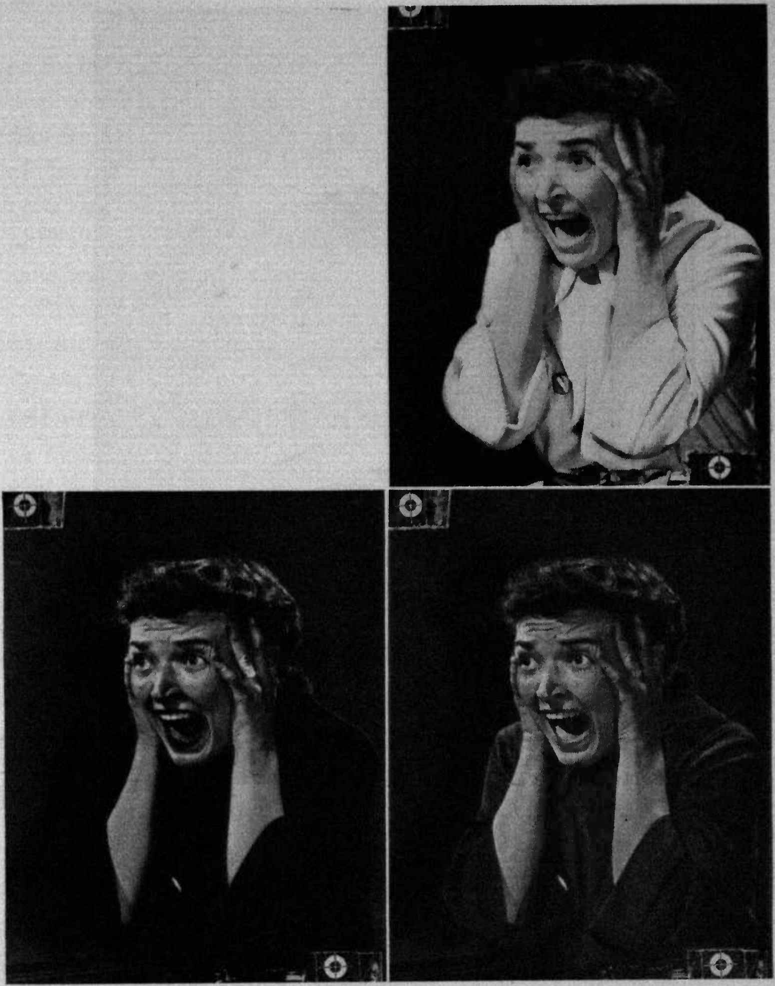
(Floyd H. McCall, *The Denver Post*)

This picture was taken on 35mm Hi-Speed Ektachrome developed as a negative in C-22 developer kit. At top left is the negative, showing register marks made by the photographer after the film was developed, and before printing, to aid in getting correct register of the three-color plates on the press. Below is a black-and-white print of the negative on Panalure paper.

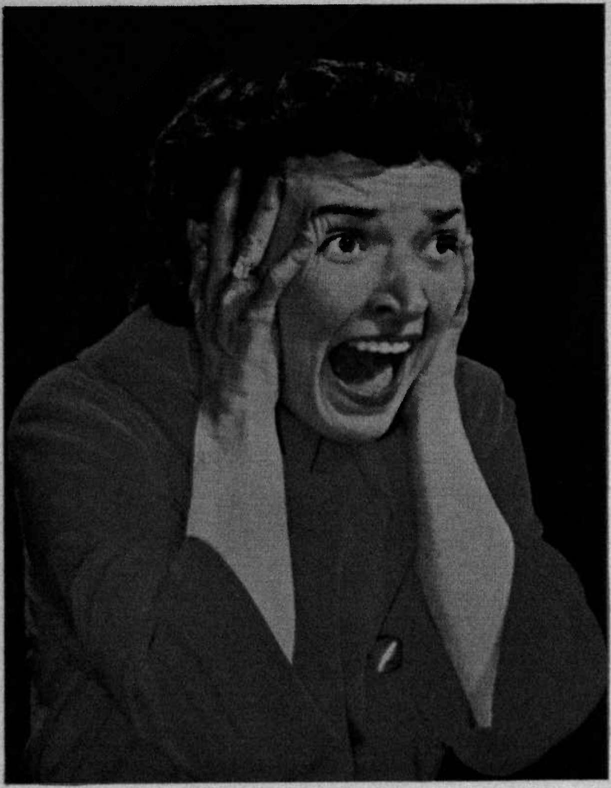




Above left is the *A* mask, bottom right, the *B* mask, both for color and contrast correction. The *A* mask was made through a red filter (No. 29) and developed in DK-50 diluted 1:2 for 5 minutes. (Developing temperatures were 68 degrees.) This gave the *A* mask a density range which was 50 per cent of the green filter record (center emulsion layer) in the negative. The *B* mask was exposed through a green filter (No. 99) and developed in DK-50 diluted 1:2 for 3 minutes, giving a density range of 40 per cent of the blue filter record (top emulsion layer) of the negative.



Top right is the blue printer on Kodak Resisto Rapid Pan paper exposed through a red filter (No. 92) and developed in Selectol Soft diluted 1:1 for 1½ minutes. Bottom left is the red printer exposed through a green filter (No. 99) and the *A* mask overlaid on the paper, developed in Selectol Soft diluted 1:1 for 1¼ minutes. Bottom right is the yellow printer which was exposed through a blue filter (No. 47B) and the *B* mask overlaid on the paper, developed for 2 minutes in Selectol Soft straight. From these three printers halftone engravings were made to print the colored inks indicated for each and the result was a full-color reproduction as shown in the illustration on the following page.



This was one of the early experiments using 35mm Hi-Speed Ektachrome film as a color negative. It was printed in *The Denver Post* before Kodak had provided the chemicals for modification of the C-22 developer. Since the modification reduces the contrast of the negatives, and this one did not have the benefit of that modification, the mask percentages are higher than is necessary today with softer negatives. The above technical data are of interest because they demonstrate the latitude of control possible in printing color separations from a wide variety of thin, heavy, flat, or contrasty color negatives.

or inclination to do any special work on improving the composition of any single picture. But the photographer who took the picture may often be willing, if time permits, to change the color of the background, or the color of a blouse or shirt. With negative color he can, although altering color composition is suggested only for society and feature pictures in which accuracy can be sacrificed for more eye-appeal.

Often the need for these color changes is not apparent until the first set of prints is viewed in the analyst. Most press photographers working with color believe there should always be some red in every picture. When it is impossible to get red objects or clothing in the original set, it is quite easy to make anything that was a light color in the original scene, red.

Farmer's reducer applied to small areas of a print will cut back one color and permit another color to come through stronger. It is safest, because of the registration problem on the press, to limit spot color correction to one of the three prints. When spot reduction is done with ferricyanide, the original detail in the picture is retained; when paint is used, the detail is covered. Caution is advisable in adding to the blue printer (print), except to airbrush more blue into the sky. Since the picture form or drawing is obtained from the blue printer in the three-color process (an engraving for black ink is not used), paint should only be added to the red or yellow printer to strengthen any spot or put color where it is absent. This technique must be practiced lightly and cautiously; it is easy to overdo. Here is where the Curtis Color Analyst is a necessity. Even as tone changes are tried, the separation prints can be placed in the analyst to check progress. The balance and form of the color changes can be accurately controlled, and it takes only a few minutes.

The assistance of a competent airbrush artist is invaluable in changing a background, taking an unwanted object out of the picture, changing the color of any object, or putting more form in an area that did not get sufficient light in the original exposure. Invariably, there is an area where something does not separate from the background, and it is easy for the artist to correct this on the separation prints.

The advantages of this system of correction become quite apparent when compared to the engraver's methods of correction by staging and re-etching. The engraver must wait hours to see a color proof.

Equipment for Negative Color

Three pieces of equipment, in addition to what is available in any good photographic darkroom, are needed for best results with negative color.

First is a Macbeth QuantaLog photographic color analyzer with reflection head. This is needed to measure the color negative through the separation filters by the image projected on the easel with the light in the enlarger, and to measure the reflection density of the prints, especially skin tones.

Second is a Curtis Color Analyst, size 11 by 14. This is expensive, but no luxury. It provides the only way to properly control color balance and it is especially desirable for the beginner. Even for the color veteran, a set of separation prints may measure correctly, look fine by visual comparison, but the analyst may quickly show that one of the prints should be a little lighter or a little darker or have more or less contrast. Then, while the negative is still in the enlarger, it is quick and easy to make a corrected print.

Third piece of needed equipment is the Kodak dye transfer register board and punch. This makes registration of masks and prints automatic, requiring absolutely no extra time.

Other simple necessities are temperature controls, voltage regulator, and an accurate exposure timer.

Color Lighting Techniques

In black-and-white shooting, lighting contrast is basic: sidelights and backlights to obtain separation for good reproduction, when the situation permits. The same technique can, and should, be used with color film, but with more care. If the sidelight or backlight is too close, in comparison with the key light and shadow-fill light, the color will be bleached out of the highlights. Both extreme highlights and heavy shadows result in the absence of color in the final reproduction.

The contrast range of color film is more limited than that of black-and-white film. This is why contrast lighting must be used with care, and why color film manufacturers generally recommend flat lighting: front lighting striking the subject more or less from the direction of the camera. But flat lighting is not recommended for color news pictures any more than for black-and-white. ROP color reproduces too flat, at best. A three-to-one lighting ratio is recommended for good color. Dark and colorless shadows can ruin a potentially good color shot; use flash to lighten shadows outdoors, but don't destroy the shadows, for with them you'll destroy the finished picture's form and depth.

For consistent success with flash and color film, the photographer must calculate exact guide numbers for his own camera and his own reflectors. A measured guide number for negative color can be determined easily by photographing the three-step gray scale used for printing control of the color separations. Photograph the scale at 10 feet, bracketing your best guess, and then with the densitometer, measure the scale. The one that measures 1.00 to 1.20 on the maximum or white step, and .20 to .30 on the black step is perfect. Multiply the *f* number used for that exposure by 10, and the result is your guide number. Actual measurements are the only sure way to determine your correct guide number.

Measurements of the negatives through the separation filters give a record of the reproduction on each of the three layers of the film, and the balance between the layers. It will show the need for light correction filters on the camera lens, and will show what happens when the color temperature of the light thrown on the subject varies. This information is used to calculate printing exposures for the color separations. These measurements will also indicate both overexposure and underexposure that is not apparent by visual inspection and will establish the exposure latitude of the film. This may seem to be a frightening plunge into the depths of sensitometry, but actually it is not. A little thought and practice will make this sensitometric knowledge a very useful tool.

Early airplane pilots flew by the "seat of their pants," but the complications of today's bigger aircraft require the use of instruments. Much the same thing is happening to photography. Exposure meters are standard equipment for newsmen with cameras, and indispensable when the cameras are loaded with color film. Negative color exposure is not quite as critical as positive color exposure, but no negative color film yet manufactured permits the wide exposure latitude characteristic of most black-and-white films. Ektacolor permits a half stop underexposure and about two stops overexposure.

Higher Film Speed for Color

Since stopping action is difficult with a film speed of 32 (Ektacolor), many photographers searched for a faster color film. The *Milwaukee Journal* photographers found they could increase the speed of 35mm Agfacolor to about ASA 80 and still retain satisfactory color resolution for enlarged ROP color.

At the *Denver Post,* Eastman Kodak's 35mm Hi-Speed Ektachrome was developed as negative film instead of as the positive reversal film Kodak intended it to be. When this film was exposed at an index of 160 and developed in C-22 developer kits prescribed for Ektacolor and Kodacolor for the normal 14 minutes, the negatives were too contrasty, especially in that layer of the negative known as the green record, from which the red printer is made. To obtain a printable negative, it was necessary to expose at a meter setting index of 100 and develop for only

8 minutes. After it had been demonstrated that Hi-Speed Ektachrome 35mm film could provide good ROP color separations at a speed of 100 with excellent sharpness and resolution, J. Winton Lemen, Manager of the Photo Press Sales Division, Eastman Kodak Company, started experiments to determine if a chemical additive could be devised to decrease this excessive contrast with no loss in film speed. The Kodak research laboratories discovered chemical additives for C-22 developer which increase the speed to 125 on bright sunlit scenes, and to 250 when the subject brightness range is lower or when it is cloudy. This without any loss in sharpness and resolution. The chemical additives are 175 grains of Kodak citrazinic acid and 96 grains of Kodak sodium hydroxide for each gallon of C-22 developer.

This advance in 35mm color-negative film speed makes ROP color entirely practicable with the 35mm camera if it has a fully color-corrected lens. It opens the door to perfect 35mm high-speed sequences in color of football, baseball, track, golf, skiing, and other sports.

Making proper color separations from Hi-Speed Ektachrome 35mm negatives is more difficult than making them from Ektacolor or Kodacolor negatives; so it is advisable for the beginner to learn on these latter films before tackling Hi-Speed Ektachrome as a negative film. The beginner should obtain the latest instructions from Kodak before starting to make color separations on panchromatic paper from color negatives, as there have been many variations in the techniques, and they will probably continue to be revised.

ix | Tackling the Assignment

THE VAST ARRAY OF PHOTOGRAPHIC equipment produced by the post-World War II dazzling sweep of technological advancement might appear to place picture reporting within the grasp of anyone. "Automatic exposure control," claim the advertisements of some camera manufacturers—a promise of machine-control of light. The technicians who design the automated cameras haven't yet built in imagination or automatic understanding of the complexities of human relationships, however. Nor are they likely to do so. The future of photojournalism demands progress of the photographer to match the progress made in the design of his tools.

The problem that the beginning photographer tackles first—technique—comes last in the list of desirable qualities in a good news photograph. Every photographer must go through a stage in which his major preoccupation is with things technical. Without a thorough and sound background in techniques, the photojournalist will be forced to rely upon luck—a notoriously unreliable means of obtaining storytelling pictures. The photographer can use his camera lens like a surgical instrument, to cut away the nonessentials and isolate the meaning if he has learned control of his tools. A graphic visualization of meaning demands control. It is through craftsmanship, familiarity with technique, that the photographer develops controls, and without control his visual interpretation will convey meaning and feeling only by accident. But the photographer advances to the rank of photojournalist only after technique has become automatic and his major preoccupation is with picture content.

Qualities of a Good News Photograph

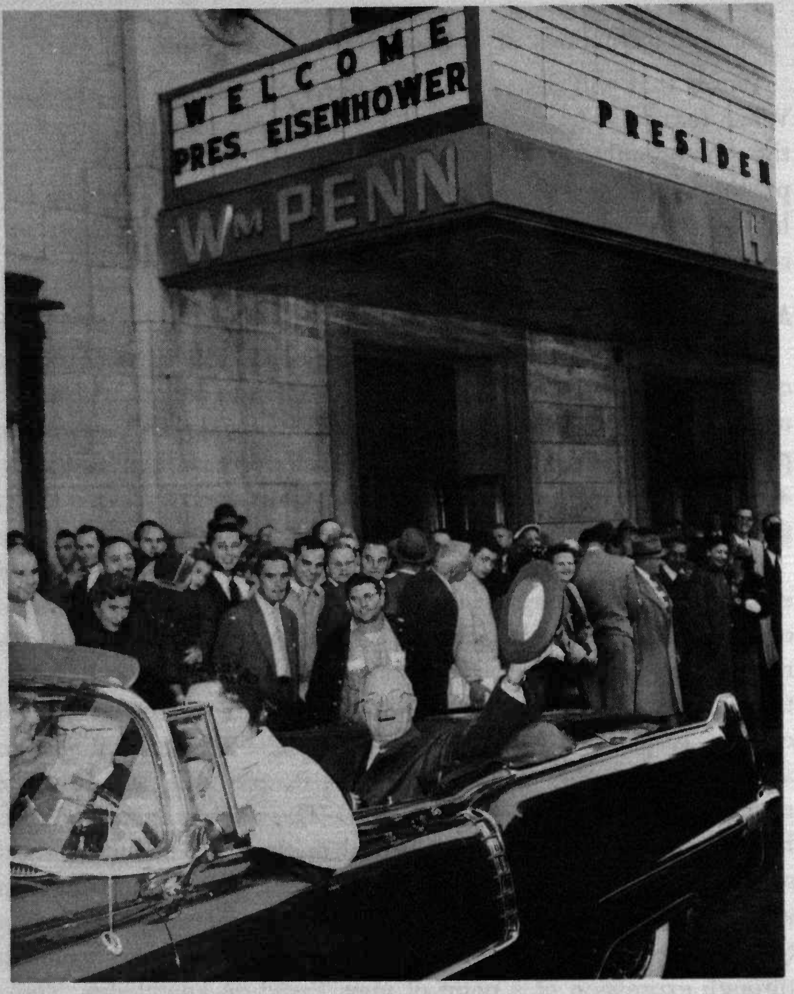
Words that will describe a good news photograph are elusive. When terms are found, they will, at best, only partially describe the photographic qualities they are meant to verbalize. Each photographer must interpret them in his own way, adapt them to his own purposes as part of his own individual approach to reporting with a camera.

Meaning

Storytelling is paramount for the photojournalist; all other qualities of the good news photograph must be subordinate to—or more exactly, must be made to contribute to—this primary purpose. The storytelling picture develops from less concern about the grains in the emulsion and more concern about the grains of interest.

The photographer must begin with a mental point of view, a story approach, born of interest in the subject—even the new officers of the Thursday Sewing Circle. An interested photographer is a photographer with knowledge and understanding of the subject. The reporter, working with either typewriter or camera, is qualified to write a story or make a visual statement about an event only if he understands it; and understanding is rarely born of a cynical point of view. The photographer should be able to feel the emotion involved in the subject, but at the same time remain an observer with a camera searching for meanings. This does not represent a betrayal of the journalistic tradition of objectivity, but rather it represents a search for meaning through expression of a point of view based on knowledge. The print can have something to say only if the photographer approaches the subject from what seems to him to be a truthful point of view.

We have seen that one of the major advantages of photography as a universal language is the fact that it gives the viewer a feeling that he is getting a glimpse of reality. Some press photog-



Morris Berman, *Pittsburgh Sun Telegraph*

Employing his Speed Graphic instinctively, the photographer was able to concentrate on storytelling in this picture of former President Harry Truman waving goodbye under a hotel marquee which indicated the interest of some persons lay elsewhere.

raphers are still doing violence to this concept. Cameras don't lie; but photographers can and sometimes do. The cameraman's judgment on point of view, perspective, posing, lighting, and timing may result in a picture that does not conform with reality. Frequent and relatively harmless examples appear in most newspapers: the philanthropist handing over a large check to a representative of the current charity drive. In actuality, this particular method of delivering the check is invariably staged for picture-taking purposes. Or the usual plaque-awarding picture. Almost invariably the principals are directed into a tight group designed solely for picture-taking. The faces are real; the plaque, or the check, is real; but the situation is phony. But if the purposes are to picture faces and obtain publicity for a worthy cause, the harmless fakery can be overlooked. Our only remaining criticism is the dullness of the pictorial report of the usual picture of this sort.

When fakery carries over into more serious matters, there is adequate justification for concern. What of the cameramen who encouraged white students to mock other whites who refused to join the walkout in protest against integration at the Little Rock, Arkansas, high school? The cameramen urged on the rebels in order to get a dramatic picture which was presented to newspaper readers and television viewers as the untampered-with truth. Or consider the case of the photographer covering a tornado along the southeastern United States coastline who persuaded survivors of the storm to pose as dead on piles of rubble.

Fakery can creep into camera reporting in a more subtle manner. The cameraman faces the same temptation as the word reporter, the temptation to emphasize the dramatic highlight, perhaps the one small moment of open conflict. Both are guilty of distortion if they emphasize the sensational rather than the merely significant. Both can emphasize or play down whatever they please, and if they approach the subject with a biased mind or with a determination to search out something sensational, the result will be distortion—a lie.

The technique of candid photography can lead to false reporting unless the cameraman realizes that a fraction of a moment in time does not represent the whole truth about an event. Any person in the news can be made to look foolish by the candid photographer lying in wait for just the right unflattering expression or gesture.

Meaning is essential in news photography, but it must be meaning based on honest reporting, and the camera, no matter what its automatic features, can never be a reporter; only the photographer can play that role.

Impact

A photograph may contain meaning, but meaning serves no purpose unless it is communicated. The reader must be persuaded to stop turning the pages of his newspaper long enough to look at the photograph. "Stopping power" must be built into the picture through the skill of the photographer.

Impact can be imparted to a photograph in many ways: through selection of subject matter, through arrangement of the various elements of the picture, through perspective or camera angle, through lighting, through correct timing of the shutter release to catch a significant moment. Novelty may achieve impact, but novelty is justified only if it is relevant. The "gag" picture is not the answer; the answer lies in the ability to see reality from a viewpoint that the unimaginative have overlooked.

More often than otherwise, impact in a photograph comes from animation. Still photography can convey a feeling of action if the photographer is skillful enough to time his exposure so that the resulting print conveys a sense of movement that actually preceded and followed the tripping of the shutter. Animation may also appear in human faces, in the emotion mirrored there; or it may appear in the still photograph that pictures the reaction between individuals, or between one individual and the situation in which he is depicted. Human emotions are basic in news reporting of many situations and they can be conveyed by the skillful writer or the skillful photographer.

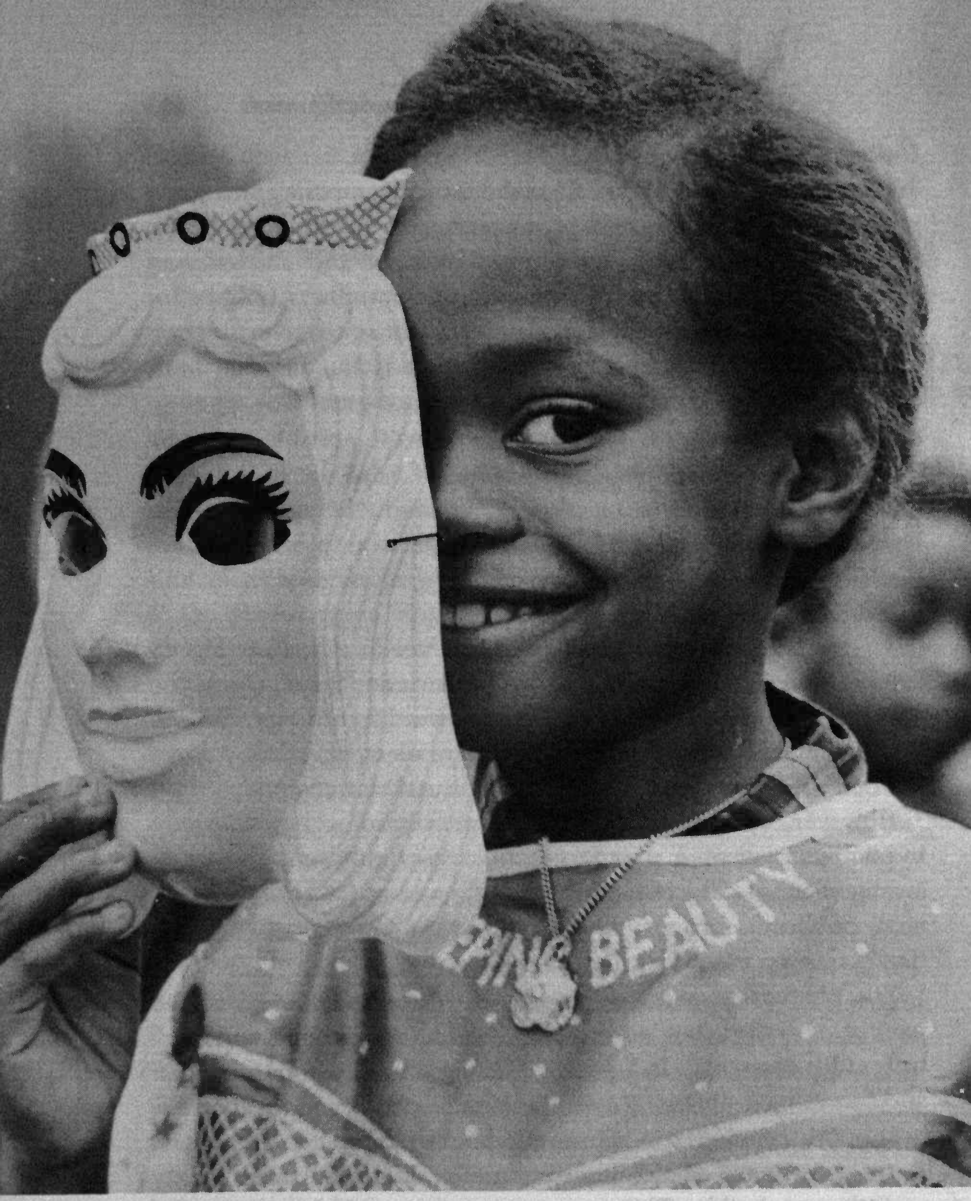
Unity

Like a good painting, or a good literary composition, a good photograph has a singleness of purpose, and all elements within the photograph—shapes, lines, areas of light and shade—must contribute to that purpose. Beginning photographers tend to include too much, just as beginning writers often try to crowd too much within a single sentence. The result is the same in both cases: a vagueness and a failure to communicate. The photographer must reduce his picture to the fewest possible elements that will contain the essential meaning of what he is trying to say. And when distracting elements remain, he must use his technical knowledge to subdue them as far as possible to get a well composed photo which conveys its message without ambiguity.

To suggest that the photojournalist needs a knowledge of composition is not to suggest that he become "arty." Quite the contrary. Composition is simply another word for unity. Composition is the arrangement of various picture elements so they make a whole: a logical, concise, and clear visual statement.

However, composition must be kept subordinate to meaning in photojournalism. A photograph that exists only for its pleasing arrangement of subject matter has little reason for existence in a news publication. In news photography, the function of composition is to support and clarify the meaning.

The photographer has less control over composition than the painter or writer, but nevertheless he has some important controls at his command. In a posed shot, the subject can be arranged and rearranged almost at will; inanimate objects, used as props to support meaning, can be moved about or removed completely. But a great many photojournalists prefer to intrude upon reality as little as possible. This means a minimum of changes in the subject itself. The photographer then falls back on four other devices often, but not always, under his control: point of view, perspective, contrast, and format.



Robert Boyd, *The Milwaukee Journal*

The assignment: a Hallowe'en picture. The photographer posed the girl as she prepared to leave on a "Trick or Treat" excursion. The closeup provided a pleasing, storytelling composition of contrasts with a minimum of nonessential details.

Point of View. Here, in general, we are concerned with the relationship of foreground, background, and principal subject. A change in either or both the distance and angle of view from camera to subject can often bring order out of chaos. Moving in for closeups, which often have inherently high impact, or changing lenses, can eliminate nonessentials. A low angle of view can often eliminate a cluttered and distracting background. By a small change of his position, the photographer can often bring order out of uncoordinated variety in what he sees in the viewfinder, find a single center of interest where before two or more existed. Very slight movement of the camera can move the center of interest, once found, out of the center of the viewfinder. It is wise to avoid having the center of interest at the center of the print, although there are exceptions to this since the frank, rigorously direct point of view is sometimes desirable. Examples of this unabashed frontal approach can be seen in Walker Evans photographs.* But usually pure order is as disturbing as chaos; the objective is to play order against variety. Similarly, lines, such as the horizon, which divide the print into two equal parts are to be avoided, since the result is usually a static, uninteresting composition—in truth, a lack of unity or composition.

Other lines play a role in point-of-view selection, since we may find a particular angle provides leading lines in the composition, lines that lead the eye naturally and inevitably to the center of interest. Horizontal lines impart a feeling of repose; vertical lines, a sense of dignity, height, or solemnity; diagonal lines, a feeling of movement or restlessness.

Or the photographer may find that an altered point of view will add repetition, a visual kind of rhythm, to his picture. In pictures of action, he lets the action lead into, not out of, the picture. This applies even to suggested movement, as in the position of the head and shoulders in a portrait.

* Walker Evans, *American Photographs,* The Museum of Modern Art, New York, 1938.

In a photograph, the point of view needs to be a clinical one, not vague and ill-defined. The photographer's opportunity lies in slicing through the confused mass of impressions to the essence. This puts a high premium on fresh vision, a child-like vision that sees things as they really are, not an edited version colored by past associations and emotional involvements. And the art of seeing from a fresh point of view can be made effective only with a carefully developed sense of timing. The photographer must recognize what Henri Cartier-Bresson has called "the decisive moment," the moment when the elements of the subject assume a fleetingly effective relationship, when the composition, the visual grammar, has coalesced into a significant statement. Once a visual statement has been made by snapping the shutter, little can be done to edit it. Cropping the negative in printmaking is still available, but cropping will rarely rescue a poorly composed picture. Effective cropping is visualized before the shutter snaps by photographers who edit with the viewfinder, not with the enlarger. The enlarger completes a decision already made.

Perspective. This is a problem of depicting space, and space for the photographer presents two aspects: three-dimensionality and scale.

To secure that illusion of a third dimension on the photograph's flat plane, we turn to the devices used by artists. Vista or tunnel compositions result when foreground objects are used to frame the principal subject in the middleground or background. The frame provides a separation of planes and leads the eye on an illusory tour in depth. The frame provided by the trunk and limb of a tree has become almost a cliché in photography, as well as some similar devices, but the basic principle is still sound and usable when applied with imagination. Lighting control can also provide the third dimension through separation of planes—a shaded foreground, brightly lighted middle ground, and luminous, atmospheric background. A third major three-dimensional device is provided by converging lines, lines that should be parallel but seem to meet at a vanishing point in the background. Generally there should be only one such vanishing point or the picture's unity may be destroyed.

Scale is important as a definition of space and mass in terms of size. The scenery photographs in the family album recording last year's vacation are often disappointing because they lack scale, nothing to indicate the impressiveness of the mountain's mass, or the vastness of the desert's space. Something of familiar size (a human figure is often best), will provide the needed scale. Substitutes such as trees, autos, houses, animals, and fences lack human interest. In closeups, the human hand has more interest as a scale-provider than a ruler. The photographer can control scale to some degree by making the scale unit appear large or small.

Contrast. Placement of extreme highlights and extreme shadows, which draw attention to themselves, can affect composition. Unity is enhanced by a balance between light and dark masses. Because of their dominating influence on the eye, highlights belong on the areas of greatest interest. In color photography, bright splotches of color against neutral and dull backgrounds will dominate. Attention needs to be paid, too, to local contrasts to avoid tone merging in small areas of the print where separate objects blend into one, resulting in confusing shapes that don't really exist.

Contrast can be controlled by exposure, lighting, and selective focus. Exposing for the highlights in the scene will make them stand out against a dark background and often eliminate the distraction of an unwanted background. Lighting can be used to provide the contrast that separates subject from the background. Without adding artificial light, the photographer can use sidelighting or backlighting to add the contrast between planes that creates depth and a tonal separation of planes. Selective focus throws the background or foreground into a contrasting blur against the center of interest.

Format. Format decision in making the print adds the final touch to the composition settled upon through the viewfinder. A print in vertical format emphasizes height, strength, and dignity. A horizontal format heightens a mood of repose or emphasizes horizontal lines within the picture. Format decision should be based on factors inherent in the subject, but it is a decision that had best be made long before the print-making stage is reached. With all but square-negative cameras, the camera should be shifted to secure the desired vertical or horizontal format before the negative is exposed. Beginners too often forget that nothing will fall off the camera if it is turned on its side.

Basic Rules

Composition in news photography is no more of a mystery than its counterpart in news writing. Innate talent may make some difference, but anyone willing to expend the mental and physical effort can learn the fundamentals. The basic rules are few. Don't be lazy: take a few minutes to analyze the situation whenever the time is available. The little effort it may take to walk a few yards or climb a few steps may provide the point of view or lighting angle that brings effective composition. Don't always depend on the retoucher to separate dark heads from dark backgrounds, or blot out the telephone pole rising out of the main subject's head. And don't be led astray by color when you are shooting in black and white. The color of the actual scene may provide pleasing compositional contrasts that won't be there in the black-and-white print.

Every assignment for the press photographer is in some ways unique. Some assignments present new challenges to his mastery of technique and agility of imagination; others are repetitions of all-too-familiar themes. But all assignments place certain fundamental demands on the photographer.

He must depend heavily on the editor who hands him the assignment for backgrounding and for occasional suggestions on the type of picture wanted. But of equal importance is the photoreporter's own background knowledge—his knowledge about his city, its problems, its landmarks, its leaders and their roles; his knowledge of local, state, national, and international issues and personalities. Only with such knowledge can he make intelligent visual interpretations of subjects and events before his lens.

He needs, too, a sharp and quick eye for what to the casual observer is the "unseen," the unusual forms or the obvious that the sated or preoccupied mind overlooks. The photographer's eye must discover the revealing details and the appropriate, undistracting background.

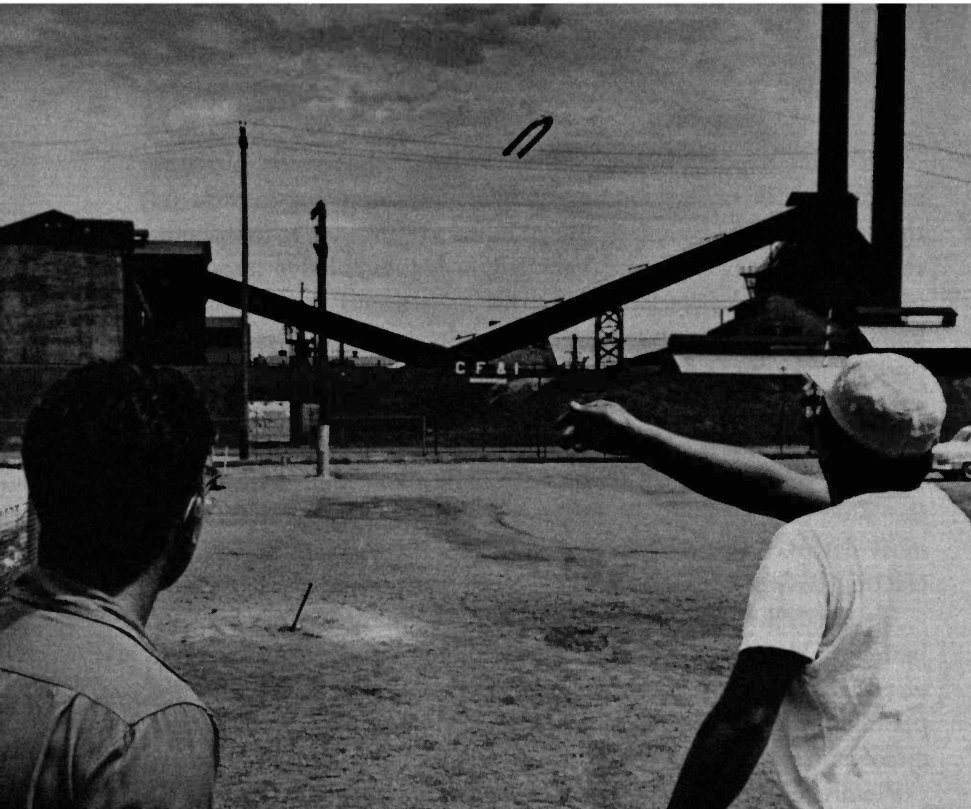
He needs a willingness to work and an inexhaustible fund of patience. Many undistinguished news photographs are the result of either laziness—mental or physical, or both—on the part of the photographer, or his impatient refusal to wait for the "decisive moment."

Finally, the news photographer must be armed with a confidence born of his ability to handle his tools and of his belief in the importance of his job. But confidence does not equate with arrogance; the confident press photographer is a courteous photographer.

The Routine

The ordinary poses a particularly troublesome challenge for the press photographer. The assignments that occur most often also seem to be the ones that present the least opportunity for variations on well-worn themes. The result: a list of news photograph clichés that any press photographer with a minimum of experience can easily name:

The group. Newly elected PTA officers, convention speakers, or program committee bravely stand up against the wall to be "shot" without benefit of blindfold.



Albert Moldvay, *The Denver Post*

Assigned to take pictures of pickets at a struck steel mill, the photographer looked for and found an unexpected angle, pickets pitching horseshoes. The photographer fashioned an effective "news story" with composition, timing, and depth of field which brought initials identifying plant into focus.

The plaque. Someone awards, someone receives, and all too often someone merely "looks on"; variations include the gavel passing routine.

The handshake. Visiting celebrity arrives or departs.

The check. Local philanthropist hands over large sum to local charity.

The shovel. Mayor breaks ground for the new city hall; in the same class is the ribbon-cutting act.

The executive. Local banker sits at desk with phone to ear.

It is rare, indeed, when the photographer returns from these or similar assignments with an exciting picture; but some of the sameness can be overcome on occasion by advance analysis of ingredients for improvements.

Setting

Backgrounds or props can make today's routine picture look different from yesterday's. The setting, of course, should have some readily apparent relationship to the individual or group photographed. Objects in foreground or background can aid in storytelling and in composition.

Camera Angle

A switch to a low, high, or side viewpoint may help. But use this device with caution. Don't shoot from too far away. It is usually only in pictures of beauty queens that legs and torsos add much to reader interest.

Posing

Best results generally result if the photographer works quickly and as unobtrusively as possible, letting the subject pose himself, be himself. But frequently groups will need guidance, by examples or by carefully worded directions. This guidance should be minimal; the longer it takes to pose the subjects the more uneasy they become. Tight poses of groups, kept to a maximum of five or six persons, are desirable and individuals and groups

Ed Maker, *The Denver Post*

The deadly sameness of anniversary pictures can be avoided with a bit of imagination. This spry gentleman demonstrated, at the photographer's suggestion, how he was still enjoying life on his 100th birthday.

should be given something to do with their hands or with their minds. Conversation will often ease the tension and establish rapport between photographer and subject. The pose should usually make the faces easily recognizable, but this is not always necessary with celebrities.

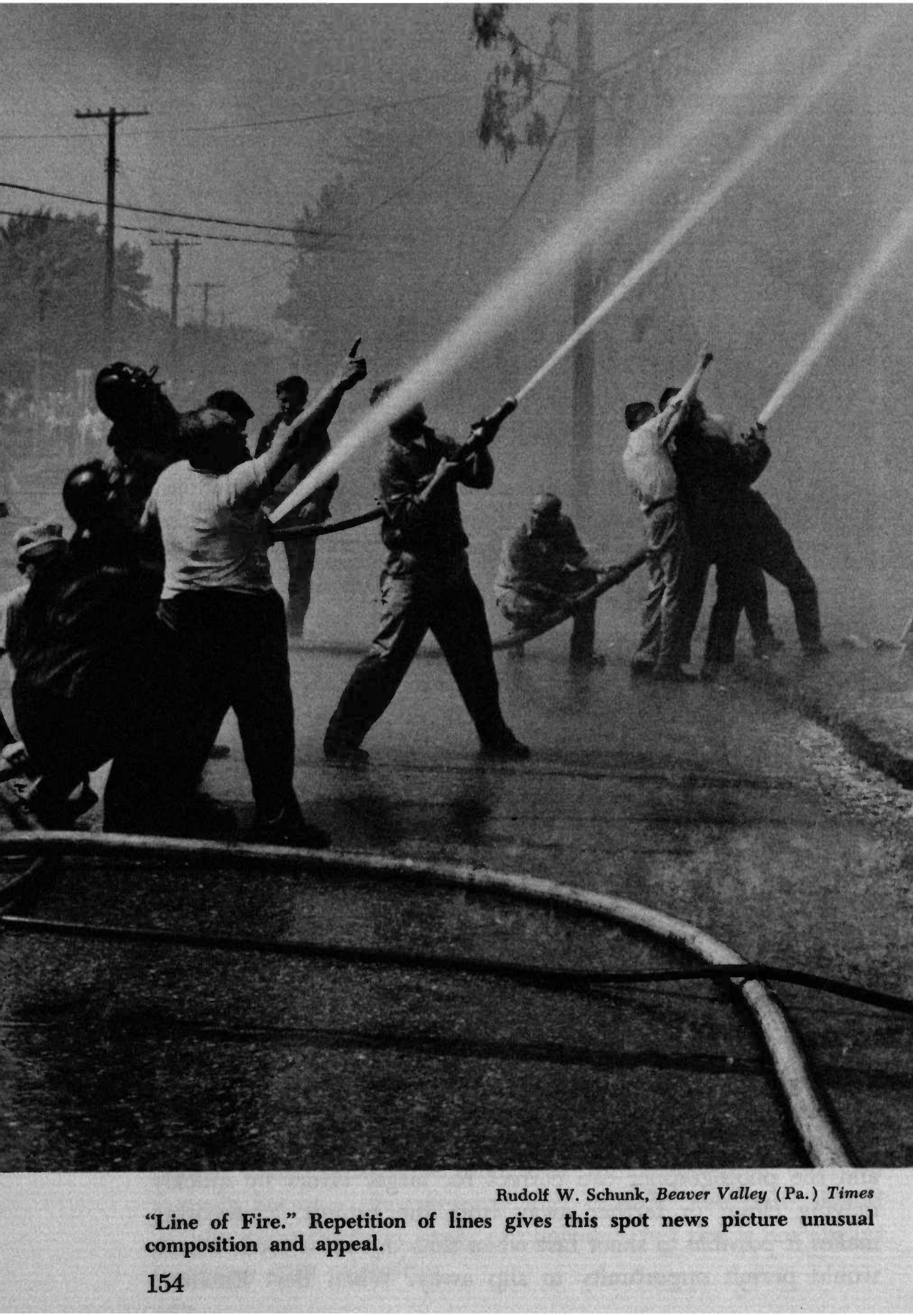
Lighting

On these routine assignments the photographer should always have full control, and there is little excuse for a print with poor technical quality. Poor technique frequently appears in the lighting. Application of the principles described in Chapter VII can help achieve an interesting picture on a routine assignment. The light should look natural, not theatrical.

Spot News

Frank Scherchel of *Life* once told an audience at a National Press Photographers Association short-course: "Shoot what won't be there later." He was discussing photo-reporting of spot news when the over-riding demand is: "Get the picture." Technical excellence is desirable in the finished print, but not essential. Good composition will help here as in any other picture, but waiting for it may produce only wistful excuses for the city editor, instead of pictures. Nor will the photographer often have full control of the lighting. But he will have—or should have—control of the instant the exposure is made, and most of the time, control of the camera angle.

His lack of control in other areas can be balanced somewhat by certain fairly standardized procedures. First of these is prefocusing, a term which covers two related techniques. In one form of prefocusing, the photographer focuses on a substitute object at or near a point at which he expects his real subject to soon appear. The second form of prefocusing involves simply setting the camera at his best estimate of the expected distance. Experienced 4 × 5 cameramen have long practiced this, usually setting the lens at 12 feet. Then, with diaphragm stopped down halfway or more, depth of field will take care of small errors in focus, and the photographer can correct for larger errors by quickly moving closer or farther away from the subject. Prefocusing makes it possible to shoot fast when time out for a focus search would permit opportunity to slip away. When Bert Emanuel



Rudolf W. Schunk, *Beaver Valley* (Pa.) *Times*

"Line of Fire." Repetition of lines gives this spot news picture unusual composition and appeal.

covered an ugly race riot for the *Detroit Free Press,* he hired a convertible, kept his camera prefocused at 17 feet and shot at 1/350 as the automobile was driven through the streets.

The photographer must be able to "shoot from the hip," without raising the camera to eye level, and to shoot with the camera held overhead so the lens "sees" over a crowd of firemen, policemen, other cameramen, or the merely curious.

The cinematic pattern provides a guide for covering many accidents, major disasters, fires, and riots. This pattern begins with a long shot or a panoramic shot that establishes the locale and the general situation, then moves progressively closer. In covering fires for example, it is generally advisable to shoot one or more panoramic shots before moving in for medium range shots and closeups of action. Foreground objects, the back of a fireman or end of a ladder truck, will add depth and storytelling impact in medium range shots. After closeups have been taken, the photographer then moves away again for a new look at how things are developing, since by this time better overall views may be available. Record shots of the damage come after the fire or riot has been squelched. In all cases, the photographer watches for the detail-revealing closeup: the tense pose of a hose-wielding fireman, the emotion-marked faces of spectators. And he comes forearmed with plenty of film and does not hoard it.

Most spot news pictures gain their impact from association with current news events; the exceptions, the prize winners, are the few that contain more. The "more" consists of universal and timeless values that retain their appeal after timeliness has run its extremely short course.

Feature Pictures

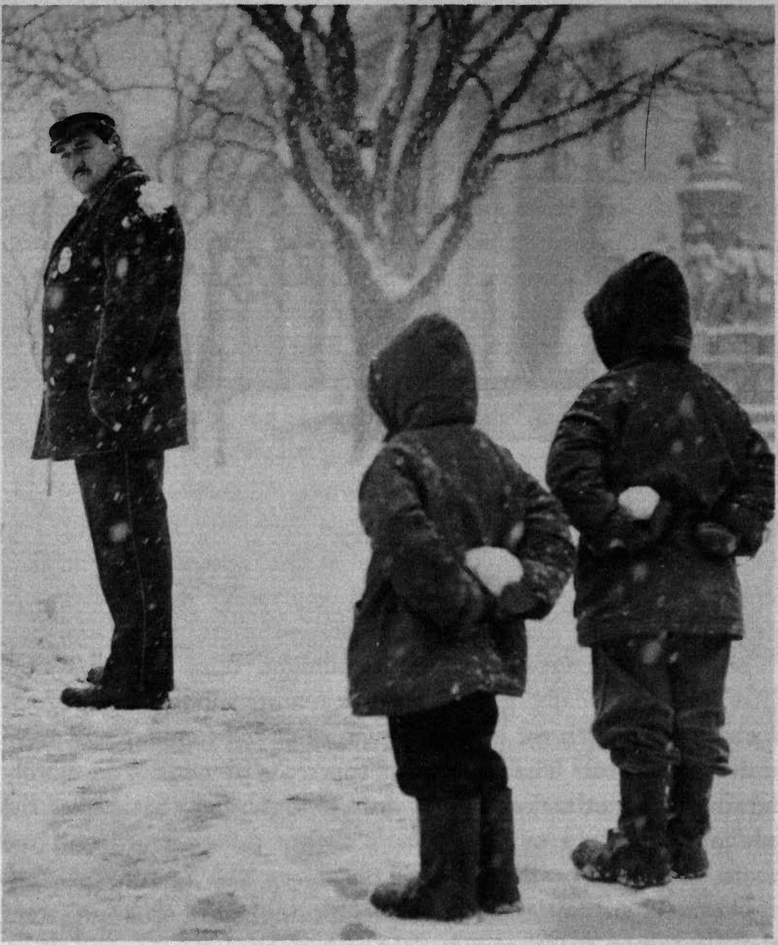
An increasingly larger percentage of pictures published in American newspapers fall into the feature category. The routine plus the feature pictures probably total about 90 per cent of the photographs published today. And most newspaper editors see no reason to object. Clayton G. Horn, executive editor of the Brush Moore Papers in Ohio, commented (in the *AP Log*):

> I think at times we get so obsessed with the importance of spot news pictures that we overlook the readership appeal of the feature picture. We can all agree that timeliness has its moments of indispensability, but I would much prefer a good feature shot to a spot picture of routine news value, which is a category into which most of them fall.

Members of the Advisory Board for the Columbia University Pulitzer Prizes in Journalism were apparently thinking along the same lines when they included the following in a statement of policy for the information and guidance of the 1960 Pulitzer prize journalism juries:

> The lucky disaster shot of the moment, the artificial, posed illustration of some headline story, the businesslike news picture of the day all seem to dominate the exhibits year after year. Little thought seems to be given to originality of subject matter or composition, except in the ranks of the prize-winners and some of the runners-up, nor are efforts made to depict the less sensational but more typical aspects of American life—the school, the church, the home, the small business and farm, the laboratory, the playing field, forest and mountain. These, too, figure in the news of the day although they do not necessarily make for sensation. . . .
>
> We ask the jurors to consider the unusual subject as well as the familiar one, the picture of universal interest that may not be as widely used as the compelling Page 1 photograph of today that may be outdated tomorrow.

Many feature pictures recur with enough regularity to be considered routine. Examples are weather pictures (when the weather is not of spot news dimensions), holiday pictures (Christmas, Thanksgiving, July 4, Easter), and the first day (or last day) of school pictures. These routine feature assignments, which parallel assignments given news and editorial writers, increase the pressure placed on the photographer's originality



George A. Smallsreed Jr., *The Columbus Dispatch*

It often takes a bit of thought on the part of the photographer to find a new idea for one of the most common subjects in press photography, the weather.

and imagination. Just as only the writer's skill and sensitivity can produce an interesting Christmas editorial, so only the photographer's skill and imagination can produce an attention-compelling Christmas picture. Most other feature assignments call upon the photographer to uncover the appeal in what is generally regarded as the dull routine of everyday life.

In a feature photograph, the cameraman is usually attempting to express a feeling or emotional attitude. To do this, the photograph must form a link between the photographer's own reactions and the sentiments within the person who will view the picture. So we have the need for the photographer to understand the universal values: the strong sentiments of anger, love, hate, joy, fear, lust; and the more difficult to define mood sentiments and sensations, such as vitality and repose, satisfaction and distrust, the finite and the infinite. Some of the most successful feature photographs establish broad limits for the viewer's imagination, only channel that imagination by mere suggestion, without attempting to depict the occurrence of any singular event. The implications of such photographs (and from the implications, the appeal) stem from nearly universal associations with some general theme.

Since the universal implies the familiar, does it then follow that any technically good (and in feature photography good technique is taken for granted) picture of the familiar will have universal appeal? The answer, of course, is obvious. The merely familiar will not make a successful photograph. What *makes* the photograph is the photographer's ability to see more and see more clearly than the average observer. The feature photographer's opportunities lie in the confusing mass of impressions that beat upon us as we move through normal, routine activities. To protect ourselves from this chaotic excess of impressions, we develop a shell of indifference and filter out all but the utilitarian, or whatever has been sharply focused by some agency outside ourselves. It is the photographer's job to clarify, intensify, and interpret by eliminating the nonessentials so that the salient point has a chance to make its impression. Selection and organization of elements for emphasis is essential.

It is easy for the preoccupied mind to pass by feature-picture possibilities in the routine of the city. The photographer who has

Ed Maker, *The Denver Post*

The lens can see what the eye cannot, and the photographer makes full use of his equipment to give readers an unfamiliar glimpse of the familiar.

trained his mind to watch for good pictures wherever he looks will be the one who turns up with the unexpected, and thus doubly welcome, feature shot. This trained mind comes for most photographers only from conscious effort, actual concentration on looking for pictures wherever they go, until it eventually becomes an almost unconscious, second-nature activity. The pictures discovered in this way frequently have an immediate use in the newspaper; at other times, they may be held for use when a future situation creates a demand.

The photographer, looking for feature pictures, remembers that people are about the most interesting subjects in the world—especially their faces. But he does not scorn scenic shots, although he watches for views that are relatively simple in form, with the forms separated by contrast between the light and the dark and not merely by differences in color, unless he is working with color film. Too, he watches for views that contain scale and that are not overloaded with detail too small to be effective.

The familiar can be pictorially effective from a vantage point that is unfamiliar. Often this is the explanation for the effectiveness of aerial shots, long-lens shots, closeups, and night views. The camera transports the newspaper reader to a viewpoint that is new and revealing, that tells him something about his environment that he has been unconscious of.

The Photographer as Director

The photographer's job includes not only handling the camera, but people as well. Some prefer to keep their photography on a purely documentary level with no, or at least a minimum of, interference with the subject or action; but even they must know how to deal with people, to quiet the anxieties of the lens-conscious, since even the most unobtrusive cameraman is detected on occasion. Many news photographers feel that some assignments cannot be satisfactorily completed without some direction of the subject to achieve an arrangement that will not distort the truth, but will make the truth evident. Whatever his method of operation, the photographer must understand people and the influences that make them what they are. Getting the right (and truthful) pose and expression is often a difficult problem, but one the photojournalist accepts as a challenge, not as an annoying chore.

Handling people in front of the camera begins with control of the person behind the camera. The news photographer's work often forces him to detach himself from the crowd, but it doesn't force him to be an obnoxious, ill-mannered bore. The confidence of the subjects can be most readily gained by the photographer whose attitude and actions indicate he is a relaxed, competent expert. The competent expert does not fiddle with the camera's controls while his subjects hold a tense and self-conscious pose. The news photographer usually has planned a picture arrangement while he was en route to the scene and quickly modifies his plan, if necessary, or develops new ones as circumstances unfold. He never arrogantly brushes off suggestions, but accepts them if they are good, and goes quietly about his own plan if they are bad. If he makes a mistake—forgets to pull the slide—he never announces the fact but politely asks for "just one more."

Professional photographers have found that the subject can relax and be himself if his attention is distracted from the camera lens. This is one of the photographer's most important jobs. Most photographers find they can do this readily with conversation, and here is where knowledge of the subject helps, since most people can be led to talk about themselves or about something of major interest to them, their hobbies or their work. Photography itself is often a good subject for conversation, since a great many persons are fascinated by the intricacies of this topic, and have dipped into it shallowly or deeply at one time, themselves. The photographer, too, must learn to anticipate accurately the moves that people will make under various circumstances. He must learn to anticipate the expressions that certain questions or comments from him will elicit.

Normally the news photographer operates as quietly as possible, avoiding calling attention to himself wherever he can. But sometimes a different approach is needed, and the man with the camera must know when a brash attitude will help.

Cutlines

Most photographers dream of making the picture that needs no help from words, but these come along rarely. Words are sometimes needed to direct attention gently to the meaning of the picture and almost always needed to fill informational gaps, since most situations contain nonvisual elements. These are the jobs of the captions and legends or cutlines. (Strictly speaking, the caption is a heading and the legend or cutline is the explanatory matter beneath the picture.) Good cutlines are concise, direct sentences that avoid merely repeating the story the photo tells. Sometimes the cutlines call attention to or explain obscure or not readily understood elements within the picture.

In newspaper pictures, a principal task of the cutlines is to furnish the who, the where, and the when. It is the photographer's responsibility to see that the information he supplies the caption writer is accurate. He is expected to supply facts, not purple prose designed to sell a picture that cannot sell itself. But the photographer should not hesitate to furnish all the facts he knows. Incomplete information from the photographer may force the caption writer to guess about the significance of what he sees in the picture. An Associated Press photo furnished its member newspapers showed a group of Russian editors being lectured by a United States senator on freedom of the press. The AP's caption was exact and factual, but one newspaper embroidered it by adding ". . . but the significance of this wink Boris Kampov-Polevoy is giving his colleagues went unexplained." The truth was that the Russian was not winking; the drooping eyelid was the result of a wound received at Stalingrad.

Copying

Few press photographers escape the copying assignment, and they may approach their first such attempt with misgiving. Actually, it is usually an easy task, if an unexciting one.

Typical subjects for copying include photographic prints for which negatives are not available, cartoons and line drawings, paintings, printed documents, and letters.

Most newspapers improvise a copying setup with a 4 × 5 camera mounted on a tripod and aimed at a convenient flat surface (wall or door) on which the copy subject can be attached. Camera film plane and copy subject must be parallel, with the camera's lens level with the center of the subject. Vertical alignment of the camera can be checked with a spirit level, and horizontal alignment with tape or ruler to equalize the distance between the top corners of the camera and the subject. Lighting should be flat. The best setup consists of two lights (floods or 100-watt incandescent bulbs in reflectors), one on each side of the subject and aimed at the subject at about a 45-degree angle or less. The subject material must be as flat as possible to avoid reflections. In some cases (pictures under glass or oil paintings) the only way to eliminate reflections is to use polarizing screens over the lights and a polarizing filter over the lens.

Focusing is done on the ground glass and the image should fill or nearly fill the negative frame. For black-and-white material, such as a photographic print, line drawing, newspaper page, or blueprints Commercial (blue-sensitive) film will usually give the best results, but panchromatic film will do. For colored material, of course, such as an architect's sketch, pan film must be used and a filter may help emphasize, subdue, or even eliminate certain colors. The best way to select a filter is to inspect the subject visually through it.

An extra step in exposure determination is necessary in copying because the bellows has been extended beyond the normal to achieve a large image. The *f* number on the diaphragm scale no longer represents a usable relationship between diaphragm opening and lens to film distance. If a meter reading indicates an exposure of *f*/8 at 1 second, the actual *f* number can be determined by multiplying 8 (indicated *f* value) by the lens to film distance (measured with a ruler) and dividing by the focal length of the lens. Example:

$$\frac{8 \text{ (indicated } f \text{ value)} \times 10 \text{ (lens to film distance in inches)}}{5 \text{ (focal length of lens in inches)}} = 16$$

The result means the effective *f* value is 16, two stops less than the indicated *f*/8. We would need to multiply the exposure time by 4. The correct exposure would be *f*/8 at 4 seconds. It is wise to use a cable release to trip the shutter, thus avoiding camera movement.

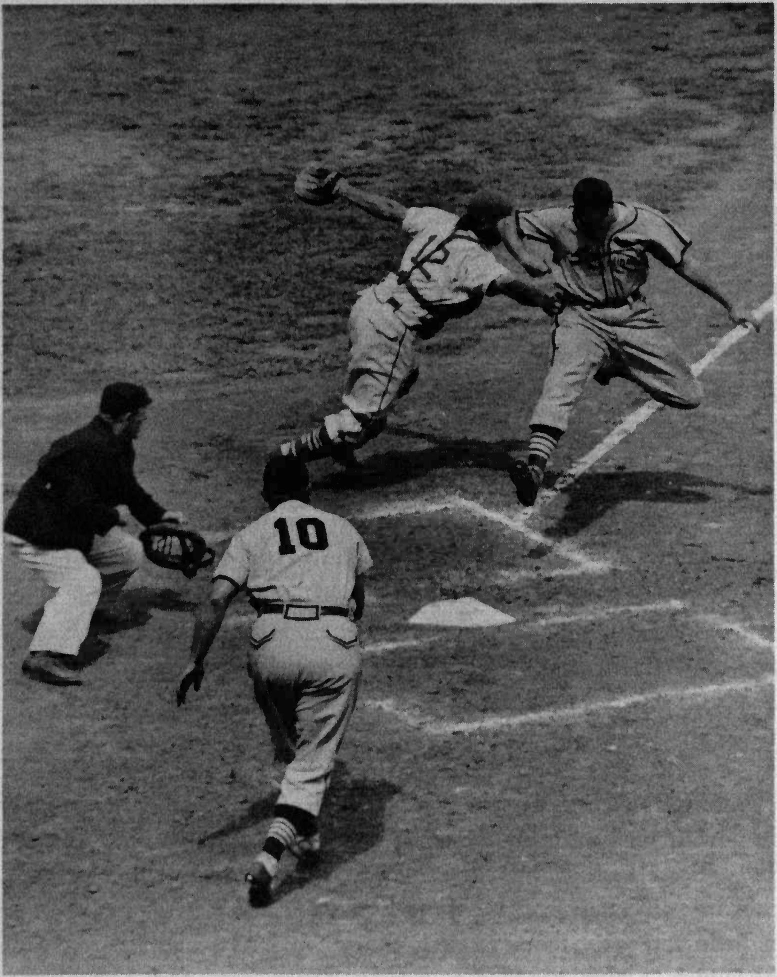
For a newspaper that rarely needs copy negatives, an even simpler method will work. The copy can be thumbtacked or taped to a convenient wall over a table or counter; the camera set on the table or counter parallel to and level with the subject. The ordinary light of the room is then used to make the exposure if it illuminates the subject evenly. Exposure can be determined by experimentation the first time, and as long as the same setup and lighting are used subsequently, no changes should be necessary. However, the *f* number should be kept in the 8 to 16 range. If the room light is faulty, the photographer can stop the lens down after focusing, open the shutter on time, step back 12 to 15 feet and fire a flashbulb in a reflector aimed at the copy subject. Distance at which to hold the flash can be determined the first time and for all subsequent times by trial and error.

x | Sports Photography

EXPERIENCE IN SPORTS PHOTOGraphy is an important step in the training of a photojournalist. On feature and some news assignments, the photographer can arrange the subjects and the lighting to enhance the picture's theme or message, but the value and interest of the sports page picture often depends on the photographer's split-second timing and ability to recognize good pictures in time to catch them on film. Many persons would be excellent camera reporters if they could somehow photograph a memory. The photographer must act in the same instant that he sees the possibility, much the same as a racing car driver reacts instantaneously to avoid a crash.

Timing and Planning

Timing of the action of the shutter release finger is extremely important in sports photography. Disgruntled editors are created by action photographs in which participants appear tired and lackadaisical because the shutter was tripped a little too soon or a little too late. In all sports, there are fairly regular moments at which action reaches a climax; these expected but always thrilling moments give each sport its spectator-appeal; in these moments the major elements of the story of the contest are concentrated. The photographer must learn to anticipate these situations. He trips his shutter as the action reaches the climax, actually a fraction of a second before the climax. This anticipation, coupled with the reaction lag between telling himself to "shoot" and the actual tripping of the shutter, will most consist-



Morris Berman, *Pittsburgh Sun Telegraph*

The photographer caught this home-plate action at the climax. His shutter finger was neither too late nor too early.

ently produce negatives that contain climactic action rather than the anticlimax. The shot which halts the motion at, or a fraction of an instant before, the climax imparts a greater feeling of continuing action, builds up a momentary suspense which the reader quickly relieves by reading the cutlines to learn what happened as a result of the picture climax.

Photographers who have made the greatest names in sports coverage have first become knowledgeable fans—but not emotionally involved "rooters"—either through actual participation or by studying the rules and keeping up with day-by-day developments on which team is doing what and by knowing the proficiencies of individual players. Through an understanding of team tactics, the photographer keeps a step ahead, preparing for what is likely to come next by getting into position for the best possible camera angle. Many persons attribute great sports photographs to luck. This cannot possibly be the philosophy of sports photographers who consistently turn in good pictures week after week. The odds are against the man who depends on luck for his livelihood. Occasionally luck will play a part, but the percentages favor the photographer who plans. Mark Kauffman of *Sports Illustrated* and *Life* magazines prescribes a three-point formula used by many successful sports photographers:

First of all, know the sport, be interested in it. This will eliminate most of the need for luck. "There's a man on first; there are no outs, and it's a tight ball game. The photographer knows that almost invariably there's going to be a bunt. So he limits his field. There'll be a play at second base; there'll be a slide; there'll be a throw to first to try to get the man who bunted."

Second, make a plan. "Where will I cover this sport from; what do we want today? We got a slide in yesterday; today I'll get something else. So you need a plan." Both pencil reporter in the press box and camera reporter on the sidelines are watching for key plays and distinctive features of each game or sporting event that explain victory and defeat.

Third, anticipate. "Really the only basic thing about anticipation other than knowing the sport and knowing where the play will be is anticipation of focus. That is done by prefocusing. Almost all good photographers will get to the event early. If it

George A. Smallsreed Jr., *The Columbus Dispatch*

The photographer planned ahead for his bad weather shots at this football game and he did not forget to look along the sidelines for feature pictures.

is baseball or basketball or an event that takes place within a certain area, he will mark certain key spots or areas where action will take place, mark them on his foot scale so he can quickly change to one or the other and be ready to shoot when it happens."

Camera Angles

The camera angle is a very important part of the plan for making dramatic sport pictures. Usually with football, basketball, and horse racing, a low camera angle puts more impact in pictures. Dean Conger, for several years with *The Denver Post* before he joined *The National Geographic Magazine,* photographed basketball by placing his camera, a Speed Graphic, flat on the floor with the lens board raised high to cover the height of the lankiest player's jump. He prefocused for the distance where he expected the action to take place, and then with flash gun in the hand off the camera, simply watched for the picture and fired away. This technique emphasizes the height of the players' leaps for a rebound and adds dramatic impact.

Two different camera angles are almost equally desirable for good football coverage. The most widely used is from the sidelines; the other is high atop the grandstand or from the press box. On the sidelines, the best shots are made with a semi-long lens, 8 to 10 inches in focal length for a 4 × 5 camera, or 85mm to 200mm for a 35mm camera. These lenses require accurate focusing and make the photographer's job more difficult because they have a limited depth of field. Several minutes spent in prefocusing for expected action at different points on the field will result in a higher percentage of sharp images. Lenses with reflex focusing and viewfinding and preset diaphragms are a great aid in shooting football from the sidelines. The diaphragms can be preset for a predetermined exposure, but focusing proceeds with diaphragm wide open for brightest image on the ground glass. When the photographer presses the shutter release, the diaphragm automatically closes down to the preset diameter. Long lenses from the sidelines are desirable because they put the newspaper reader close to the action, so close that he may actually feel as though he were participating. This type of closeup action shows the reader facial expressions and other details he was unable to see from the grandstand, a major factor in building reader-interest in the sports page.

Intelligent, judicious cropping will help move the reader close to the action. Good cropping plus large prints often will "sell" the sports editor on the photographer's favorite shots. Sports editors want superior pictures for their pages, but sometimes they need to be shown what is superior.

George A. Smallsreed Jr., *The Columbus Dispatch*

A 15-inch telephoto lens on a 4 × 5 camera (exposure 1/1000 at *f*/11) brought the newspaper reader close to this action. The low angle of view added impact.

A press box camera angle requires much longer lenses, 12 to 24 inches on a 4 × 5 camera and about 400mm on the 35. The two types of cameras have different functions. The large negative shows the area of the play and the print can be diagrammed to trace the movement of the ball carrier. The small negatives are more adaptable to sequence pictures.

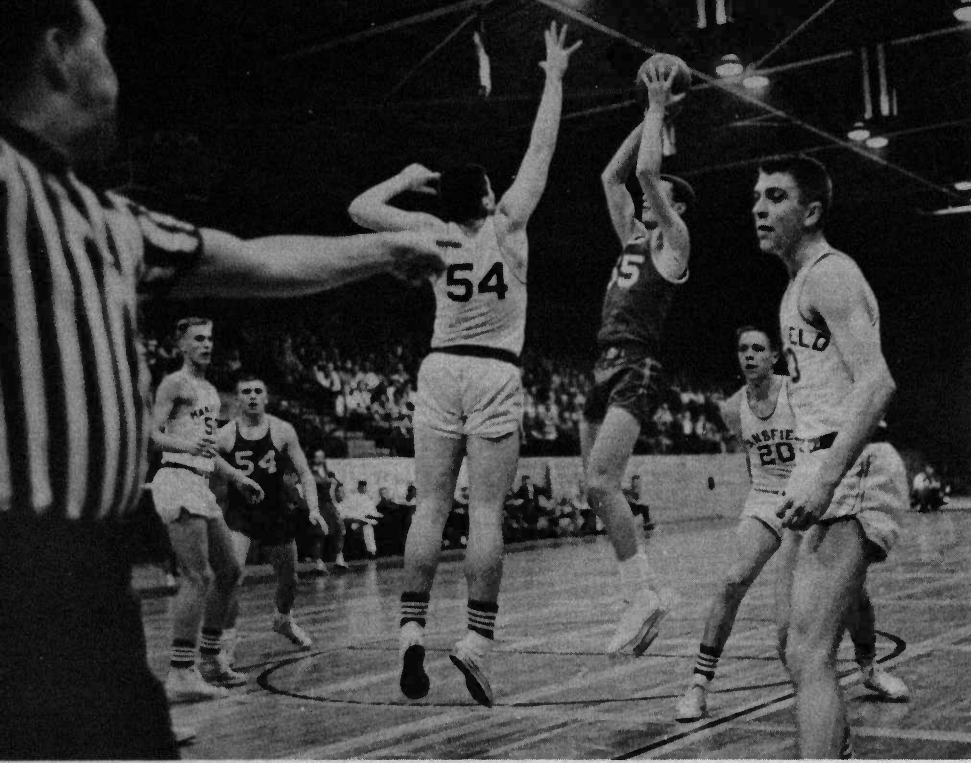
Sequence Pictures

Sequence cameras have been made from regular movie cameras by changing the shutter. The piece-of-pie shaped opening in the disc shutter which spins in front of the lens is reduced to about a 7-degree opening; this narrow opening is needed to stop the action. A finder must also be devised to show the exact field covered by the lens. This can be accomplished by using a pair of binoculars on which the picture area is marked, or by attaching a metal tube to the lens with a small "peep" hole at one end and a mask matching the field of the lens at the other. With this arrangement, the photographer can look with both eyes, one eye seeing the whole field to follow the action, and the other, only the field of the lens for aiming accurately at the center of action. When the camera runs at 12 to 14 frames per second, the exposure is about 1/750 of a second. Each frame is sharp and the number of frames gives perfect selection for the best pictures to show progression of the action. Another camera for sequences is the Hulcher, now available for 35mm film. It is adjustable for shutter opening and number of frames per second.

Sequence pictures of a football play from start to finish have great reader-interest because they present a true picture story, much the same as movies do. Their story can be studied at the reader's leisure. Sequence pictures also can dissect, so to speak, the swing of an expert golfer, the windup and delivery of a star baseball pitcher, the ride of a champion broncobuster, and the difficult maneuver executed by a figure skater.

Lighting for Sports

Artificial lighting of sports events is becoming the rule rather than the exception, since more and more sports events are being scheduled at a time when there is the greatest potential attendance. The photographer may shoot with the existing light—the artificial light provided in stadium or arena—or he may bring along his own light (flash). New fast films and fast lenses on small cameras have made sports photography with existing light entirely feasible, but many photographers have greater faith in



Tom Brunk, *The Lima* (Ohio) *Citizen*

Leica M2 with 35mm wide-angle lens and high-speed Ansco Super Hypan film combined to make this picture with existing light possible. The film was exposed and processed normally. Developer was Ethol UFG.

flash. Many athletic teams insist that the flash be electronic since its brief duration does not blind the players.

When the first night football games were played, photographers used flash powder. This, combined with a top front shutter speed of that era of 1/200 of a second, made action stopping difficult. Next came the large flashbulbs which had a long light duration and the action still had to be stopped with the front shutter. This became easier when front shutters were designed to give speeds up to 1/400 of a second. The range of the light from the flash was about 40 feet. The next improvement came with the long or flat peak flashbulbs, which allowed the photographer to use the curtain shutter on his Speed Graphic with speeds up to 1/1000 of a second. However, the depth penetration of the light was shortened so that most films were given extra time in the developer, sometimes in hot developer, and this greatly increased the grain size in the negatives. Even so, a grainy picture was better than no picture.

Only the intrepid could face the problems of sports photography in the 1930's and the early 1940's when film or plate speeds were 50 to 80. Flash powder set photographers and surroundings afire or filled the air with so much smoke that further pictures were impossible for several minutes. Today with film speeds up to 800, a variety of flashbulbs and fast electronic flash units, the mechanical phase of the photographer's job is much simpler—and safer. He can concentrate on the subject.

Electronic Flash and Ghosts

The first electronic flash units, commonly called strobe lights, made by Edgerton produced light which lasted for only about 1/10,000 of a second. Negatives made with this light were flat and had to be developed about 50 per cent longer than normal to build sufficient contrast to make good prints. Simply explained, this was because the light was so brief that it failed to penetrate the film enough to give a proper exposure. Later, strobe light improvements increased the flash duration so that extra development was unnecessary. Today's portable, battery-powered lights have a speed (light duration) of about 1/1000 to 1/2000 of a second, perfect for stopping almost any action encountered by the sports photographer.

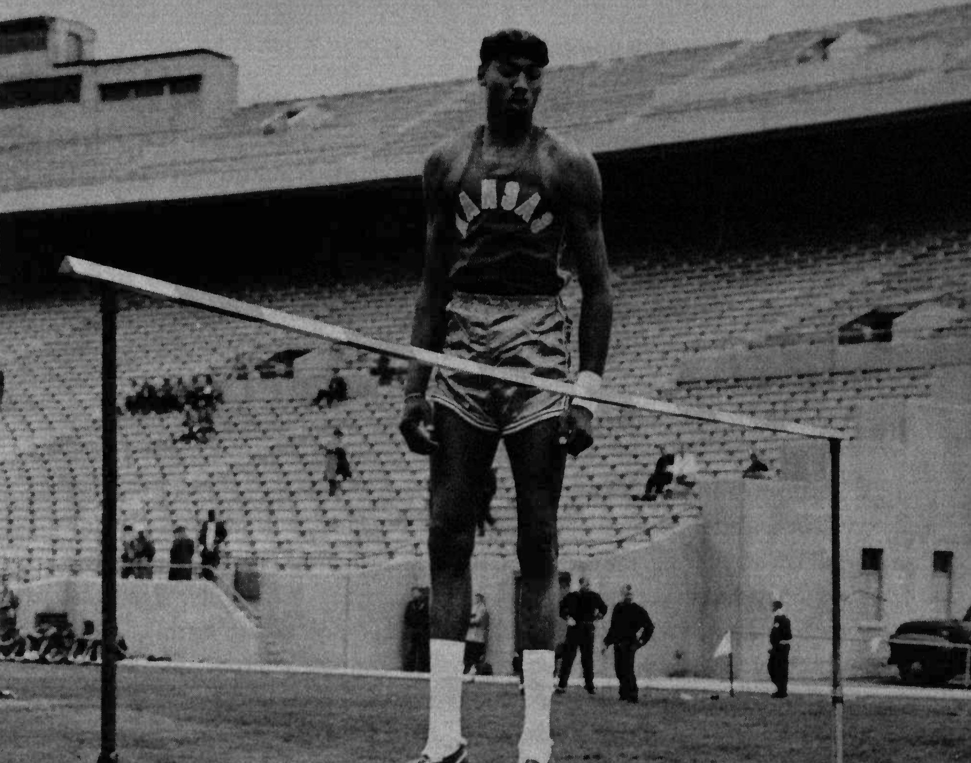
Strobe lights, however, are not compatible with all cameras in all shooting situations. The lightning-like flash of the strobe can be used with curtain (focal plane) shutters at shutter speeds no higher than 1/50 of a second, or only when the whole surface of the film is uncovered by the shutter. This is fine when the existing light level is low. But when the existing light is high and the shutter is set at 1/50, film sometimes picks up a so-called "ghost image" from the existing light, unless the *f* stop can be small enough to eliminate it. But stopping down the diaphragm reduces the effective distance of the strobe light.

"Ghost images" in high speed action can also result from an exposure recorded with the "tail" of the strobe flash. Electronic flash tubes build very rapidly to an extremely high peak-light output, remain bright for only 1/1000 of a second or so, then drop to almost nothing. Notice that word "almost." A little light is emitted for 1/100 of a second. If the film is overexposed, this small amount of light will register an image, and the effective duration of the flash is lengthened. So, in shooting action with strobe light, minimum exposure is doubly important.

Stopping the action without any "ghost images" is easier with a between-the-lens shutter since the effect of existing light can be eliminated with a fast-shutter speed. This, however, usually limits the photographer to a one-lens camera in the 35mm field. In most instances, the camera that has interchangeable lenses of different focal lengths is equipped with a curtain shutter. The exception is the Kodak Retina cameras which have front shutters with interchangeable lenses of excellent quality. A couple of manufacturers have tackled this problem by building a 120-size camera with a shutter in each interchangeable lens. It is the same principle that has been used on the Graphic for years, and other manufacturers may adopt this idea for their cameras. Graflex Inc. discarded the curtain shutter in the new Super Graphic which introduced a front shutter with accurate speeds up to 1/1000 of a second. This shutter was made available in a normal focal-length lens and was promised for other focal lengths. The top shutter speed in other lenses of 1/500 of a second does quite well in stopping most indoor sports or night events with strobe.

Multiflash on Sports

With the big, powerful Ascor 800- and 1000-watt second units in strobe lighting, sports photographers try, when time permits, to light hockey arenas, night football fields, basketball courts,



Robert Gorham, *The* (Lincoln) *Journal-Star*

The best sports pictures are not always those taken at the peak of competition. A low angle was effective in getting this picture which the photographer titled "Test Hop."

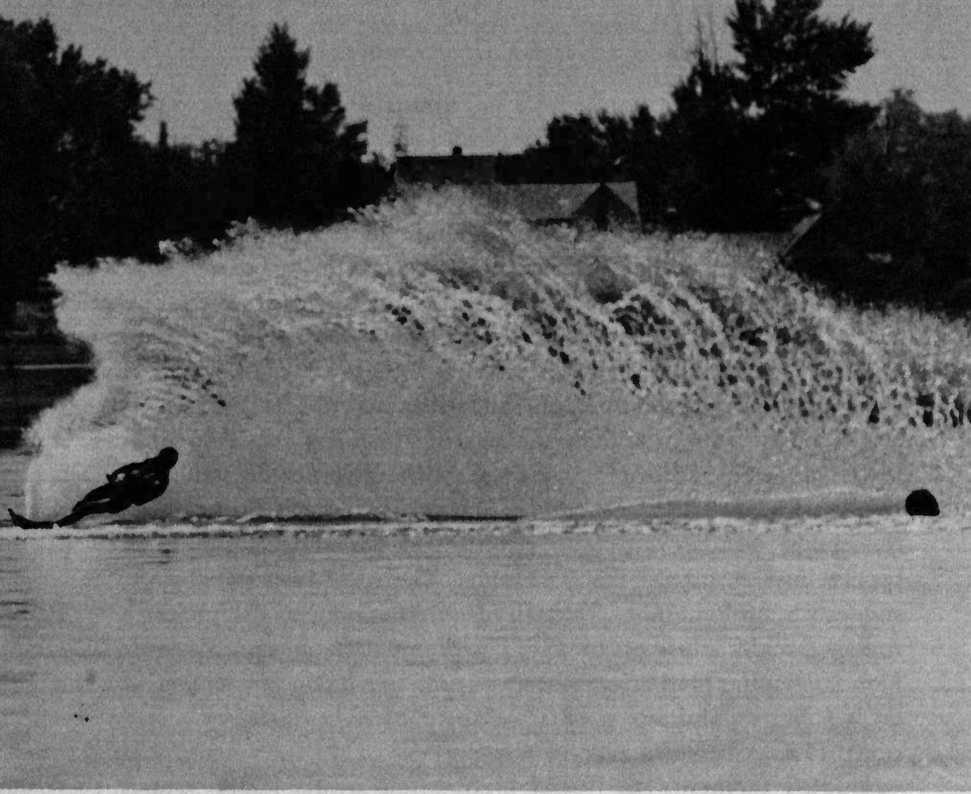
and rodeo arenas as if they were Hollywood sets. They hang flash units overhead to provide key lights, backlights, sidelights, shadow fill lights, and lights on the crowd in the background. This, of course, takes advance planning and time to install the lights, plus a heavy investment in lighting equipment. The units are all connected to a common tripping circuit connected to the camera. Where camera mobility is necessary, the lights are tripped with a photocell which responds to the light at the camera. This method must be controlled so other photographers do not "rob" the lights with their flash. If the photocell is enclosed in a tube and held by an assistant, it can be kept pointed at the flash on the camera of the photographer who is using the setup. Camera mobility and control of the overall electronic flash installation is also permitted by a small, short-range, battery-powered radio transmitter and receiver which trips the lights. This has been done successfully with both flashbulbs and strobe light circuits. Sometimes it is easier to trip one set of units on one side of the field by having a shielded photocell pointing at one of the permanent lights installed on the side where the photographer is working. The shield keeps stray light from tripping the circuit; the photocell will fire the far-side lights only when the photographer connected to the main set of lights shoots.

While these large strobe units are extremely useful on many assignments, the portable electronic flash units are much more commonly used. They are standard equipment, usable on almost any assignment; their cost is relatively low, fitting almost any newspaper's budget, and the lights can be set up in little time. Photocell-operated extensions are available. Often called "slave" units, these cell-operated units need no wire connection with the light at the camera. One compact "slave" strobe made by Heiland is the Strobonar 60S, built into a single case so small that three or four will fit into a gadget bag. More than one light is strongly recommended wherever possible. Backlighting and sidelighting the athletes will not only stress contour, but will also separate subjects from background, so necessary for newspaper reproduction.

A Reminder on Guide Numbers

The many different electronic flash units make it imperative that the photographer learn the guide number of his unit for each different film speed. From the guide number he can calculate the *f* stop for whatever shutter speed he has set. With the large, powerful strobes, the light duration is long. So, when a fast shutter is used to stop action, some of the light is wasted and the guide number must be determined for different shutter speeds, just as for regular flashbulbs. The manufacturer always suggests a guide number for each electronic unit, but the photographer usually must check these with his own equipment and film-developing methods. Shutters vary in efficiency just as lenses do. Of course, shutters need checking and reconditioning occasionally.

Another factor in the use of high-output strobe lights: when the output of the condenser is split into two, three, or four electronic flash tubes, the time duration of the flash is shortened with each additional tube. For example, the Ascor 600 series which uses 800-watt seconds of electrical energy (the electricity used by eight 100-watt light bulbs for one second) has a flash duration of about 1/200 of a second when all 800-watt seconds are flashed through one tube. When it is divided into two tubes, the duration of the flash is, perhaps, 1/300 of a second, while when it is divided into four tubes, the duration is cut to about 1/600 of a second. Splitting the light, of course, cuts down the guide number proportionately, because the guide number is calculated for one light only, the key light. If the guide number for 800-watt seconds in one tube for Ektacolor film is 180, it is 150 with two tubes, and 100 for three tubes.



Ira Gay Sealy, *The Denver Post*

High shutter speed and anticipating the action made this shot possible. The photographer deliberately violated a compositional rule: let the subject move into the picture, not out of it. He put the water skier at the left margin so the pattern of water spray could be included. All rules can be ignored with success when there is a reason to do so.

Stopping the Action

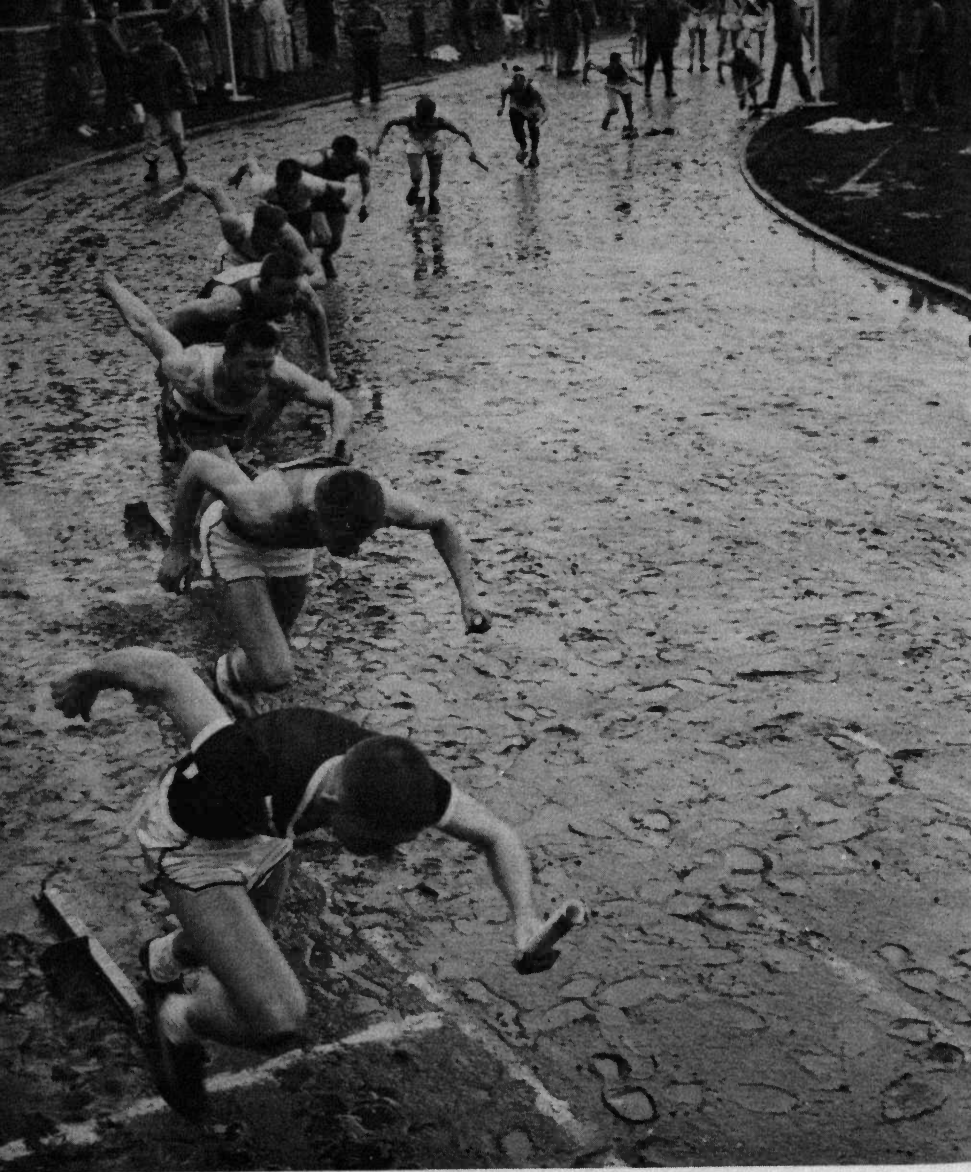
Technique takes on special emphasis in sports photography because of such problems as using long lenses and stopping action. Newspaper readers prefer sharply defined images. The spectator at a sporting event is at a disadvantage because the rapid movement of participants makes clear perception difficult; although he was there, he doesn't know just how that football lineman blocked the all-important kick for an extra point. The photograph should supply what was not visible to the eye. To do this, the photographer must restrict the motion of the image on the film.

This is often accomplished, of course, with electronic flash, but without this aid the photographer must then consider three factors: speed of the movement, direction of the movement, and subject distance. A balancing of these factors will indicate the shutter speed needed to restrict image movement enough to give sharp outlines.

It is possible to make an acceptable box camera picture of a speedboat if the boat is way over there on the other side of the lake, but a box camera picture of a child walking at a distance of six or eight feet would be blurred. The closer the subject to the camera, the larger the image size on the negative; as the image size increases so must the speed of the shutter to stop the movement. A wide-angle (short focal-length) lens puts relatively small images on the film and so demands less shutter speed than the long lens which, in effect, brings the photographer close to the subject.

Photographers consider direction of movement in relation to the camera position. If the movement is directly toward or away from the camera, a relatively slow shutter speed will give a satisfactory image. If the movement approaches the camera at approximately a 45-degree angle, shutter speed should be doubled; and if the movement will take the subject across the axis of the camera lens at a 90-degree angle, shutter speed must be doubled again.

Then, of course, if subject distance and direction of movement remain constant, but speed of subject movement increases, shutter speed must also increase. A shutter speed of 1/200 of a second will "stop" pedestrians crossing in front of the photographer at about a 45-degree angle at 25 feet, but the shutter would have to be set at 1/400 of a second or faster to stop sprinters at a track meet at the same angle and distance. If a sharply defined image is the objective, use the fastest shutter



Ira Gay Sealy, *The Denver Post*

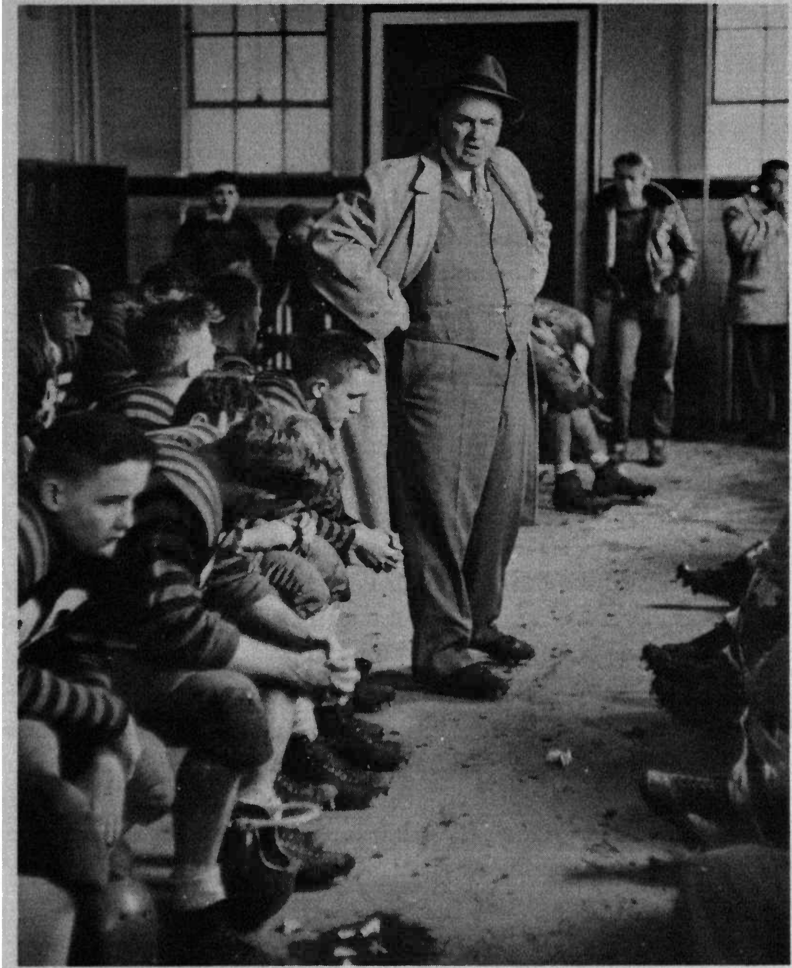
There are good pictures at the beginning of a race as well as at the end. The photographer recognized the possibilities long before the starter's gun fired and was in position for this prize-winning pattern shot. Leica, 35mm lens, Plus-X film exposed at 1/500, *f*/5.6. Depth of field is excellent despite the relatively large diaphragm opening.

speed possible that will give a printable exposure. The need for fast shutter speeds usually dictates the use of high-speed films in sports photography.

In some sports, the peak of action, and the point when the most interesting and dramatic pictures can be made, corresponds to the moment when subject movement is at a low point. This is true, for example, of high jumping and pole vaulting, since the best picture is usually the one made as the athlete clears the bar, a time when movement is virtually suspended for a fraction of a second. Shooting at such a "peak" reduces the need for high shutter speeds.

On rare occasions, the press photographer may wish to consider the possibility of deliberately shooting for a blurred image. A photograph of "stopped" action sometimes looks as if there were no action at all; these are almost always the pictures snapped too early or too late. But if a sharp image of movement at a precise moment is not the important thing, a sense of motion can be imparted through the still photograph by deliberately letting all or parts of the image blur. A shutter speed slower than that needed to stop the movement will show a blurred subject against a sharp background. Or the subject can be kept in fairly sharp outline and the background blurred to enhance the feeling of movement by "panning" the camera. The photographer aims at the subject as it approaches, pivots to keep the subject in the viewfinder, and then trips the shutter without halting the pivoting motion until after the picture has been taken. These, however, are techniques the press photographer uses only rarely.

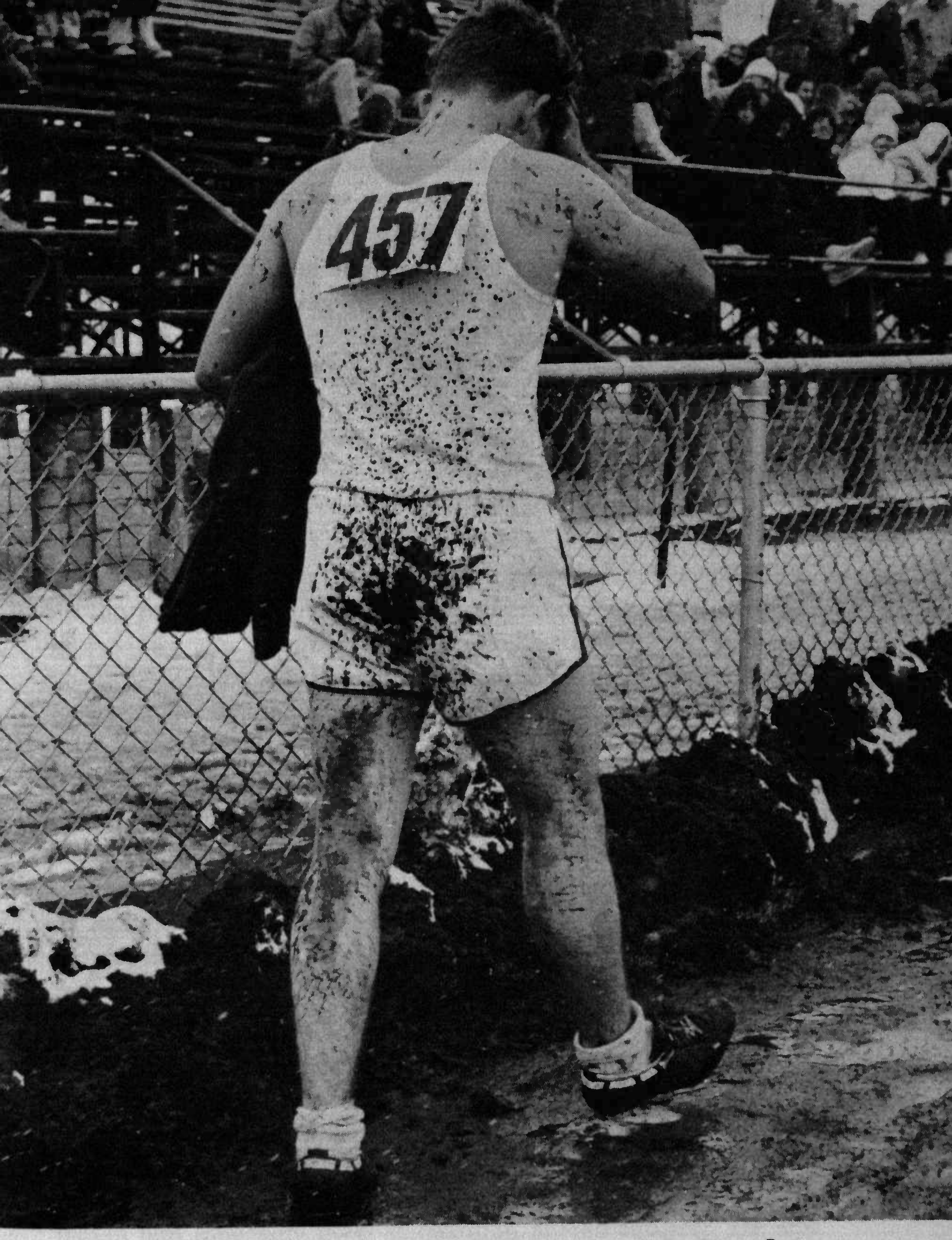
Other change of pace shots result when the camera is turned away from the playing field or arena and aimed at spectators, at coaches, or at the bench of substitutes. Often there is as much dramatic, storytelling picture material along the sidelines as there is on the playing field. And sometimes the best picture of all can be made after the contest has been decided and the result made known in the attitudes and facial expressions of both participants



L. H. Whittaker Jr., *Quincy Patriot Ledger*

This picture was taken with permission of the coach at halftime with a Nikon 35mm camera, 50mm *f*/1.4 lens. Exposure was by existing light at 1/60 of a second at *f*/2 on Plus-X film; meter setting index, 400; developed in Ethol UFG.

and spectators. Unless the photographer must rush off to meet a deadline, he should wait for a chance to get these story-ending shots. And throughout the event he must consciously avoid get-



John Lee, formerly with *The Denver Post*

The photographer was alert for picture possibilities after the race had been won—not by this fellow—and the result was an excellent storyteller.

ting emotionally involved himself, since this will inevitably reduce his effectiveness as a reporter, and may even leave him unprepared to catch the best picture of the day. He should not care which team wins or loses the game he is covering; his only concern should be whether he wins by getting the best possible picture or loses by missing it.

xi | *Women's Page Photography*

ALTHOUGH SOME NEWSPAPERS have retained the "Society" label for the section intended to appeal particularly to women, more have changed to headings like: "Of Interest to Women," "News About Women," "Women's World," "The Women's Angle," or simply "Women's Pages." The change has gone deeper than the label. Rather than concentrating on the parties, clubs, and seasonal migrations of social leaders, newspapers are devoting more space to food news, fashions, home decoration, child care, and public service activities of women. The broadened news outlook has meant a change in picture content as well: in many papers there is something more than club women at the tea table, socialites dressed for the ball, and studio portraits of brides. The informality and the realism characteristic of general news pictorial reporting has crept onto the society page. Women's page photos are allowed to appear in straightforward rectangular shapes without benefit of overlapping layout, mortises, curlicues, or other cluttering embellishments. And pictures in the society section are bigger and often in color.

Only on the largest of the metropolitan papers is society photography an exclusive specialty for one or two members of the photo staff, although society assignments go frequently to the photographer with demonstrated ability to handle them well. He is usually the fellow with a patient sort of diplomacy that makes him especially good at handling human subjects. He will often need to call upon his subjects for a bit of acting to get the pose he wants, and a word of appreciation or praise produces more cooperation than a glum look of boredom. Too many photographers look upon the society assignment as a disagreeable chore; actually it can be as challenging and as interesting as general news or sports. It can also give him excellent opportunity to experiment with composition and lighting.

Despite the quite evident improvements in many newspapers, society photos in general have lagged behind progress made in other sections of most papers. The broadened coverage in word reporting in women's news provides the cue for better photography as well. Food, fashions, home decoration, and news of children are all excellent subjects for photographic reporting.

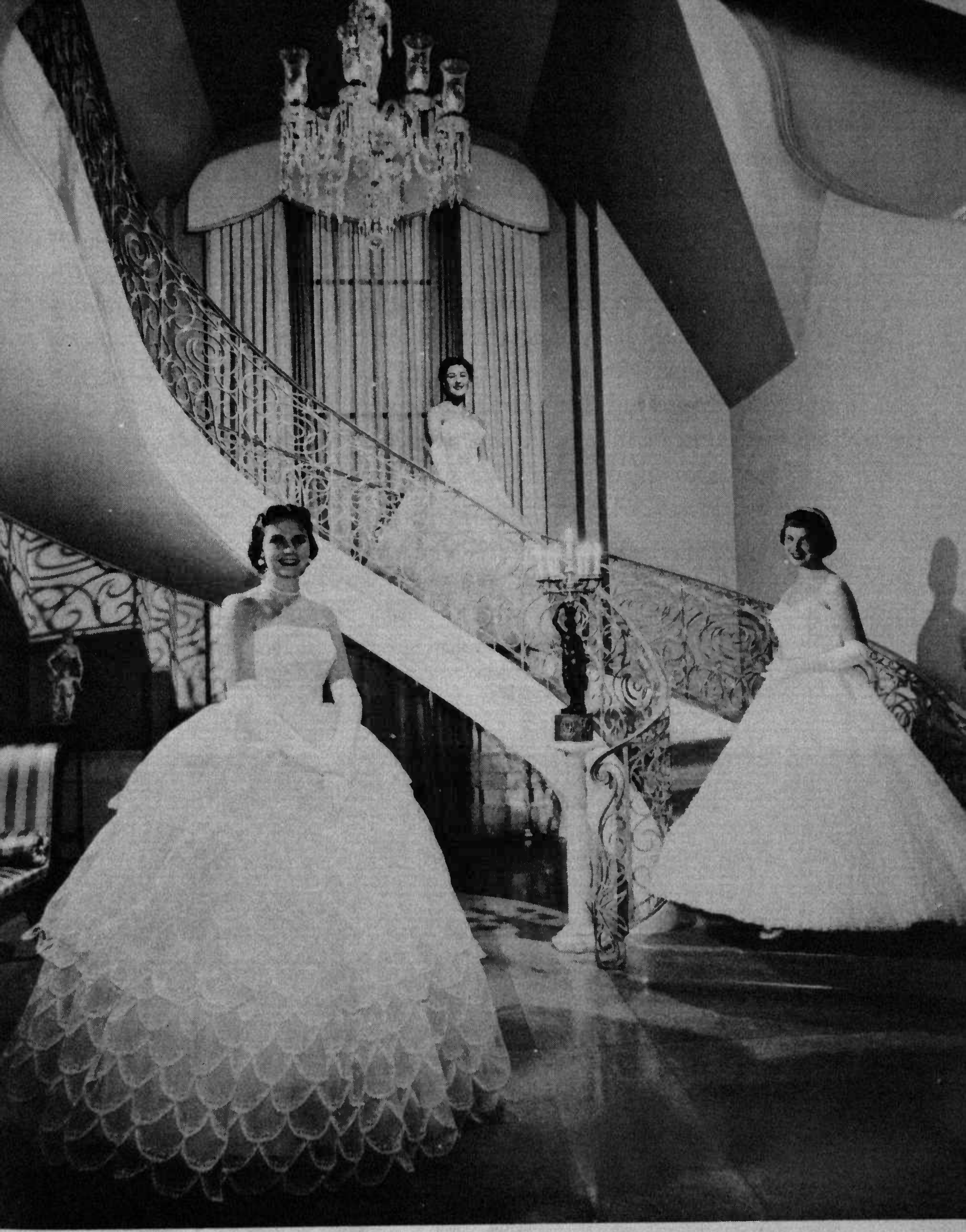
Food

Readership studies have demonstrated that reader traffic jumps significantly when a word feature about food is accompanied by a photograph, especially when the picture is printed big enough to gain full impact. Food pictures should have appetite-appeal; a cake should be shown on a table as though the hostess was just ready to serve; it is even better if a wedge has already been cut and placed on a plate as an invitation to the reader. Food, of course, usually looks better in full color.

Fashion

In fashion photography the basic objective is to show what the dress, or coat, or other apparel looks like. Many male photographers may find the world of fashion bewildering and esoteric, and should accept guidance from the society or fashion editor who can interpret fluid silhouette, bouffant skirt, sheath, shirtwaist, welt pocket, décolletage, French-contoured belt, lantern sleeve, and similar terms.

The story told by the fashion photo should include the basic silhouette of the dress. Backlighting will help emphasize the



Albert Moldvay, *The Denver Post*

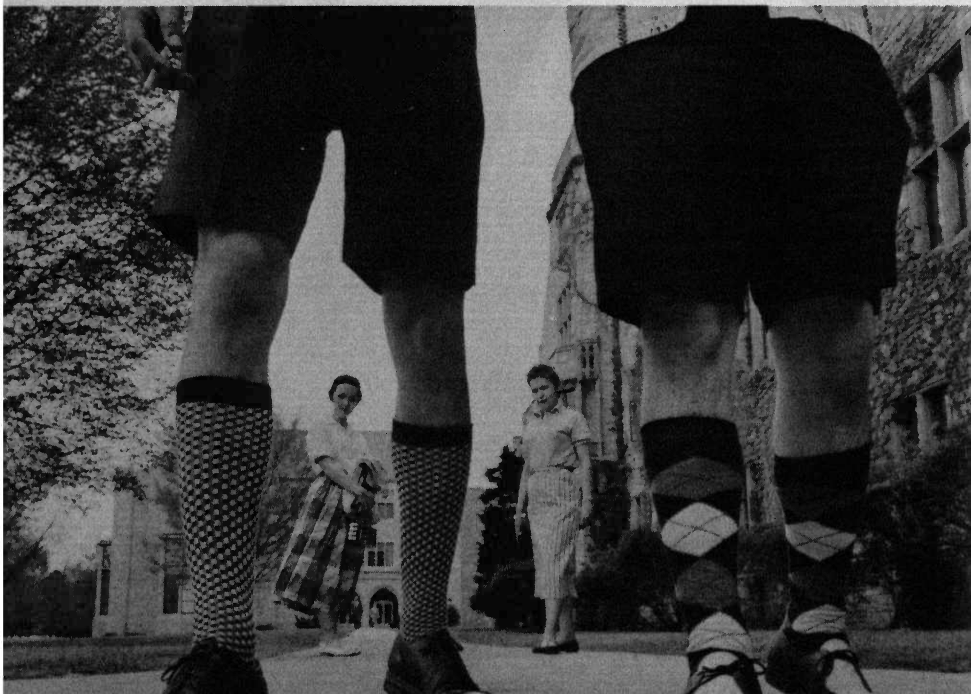
The annual debutantes ball inspired this carefully planned photograph for the society page.

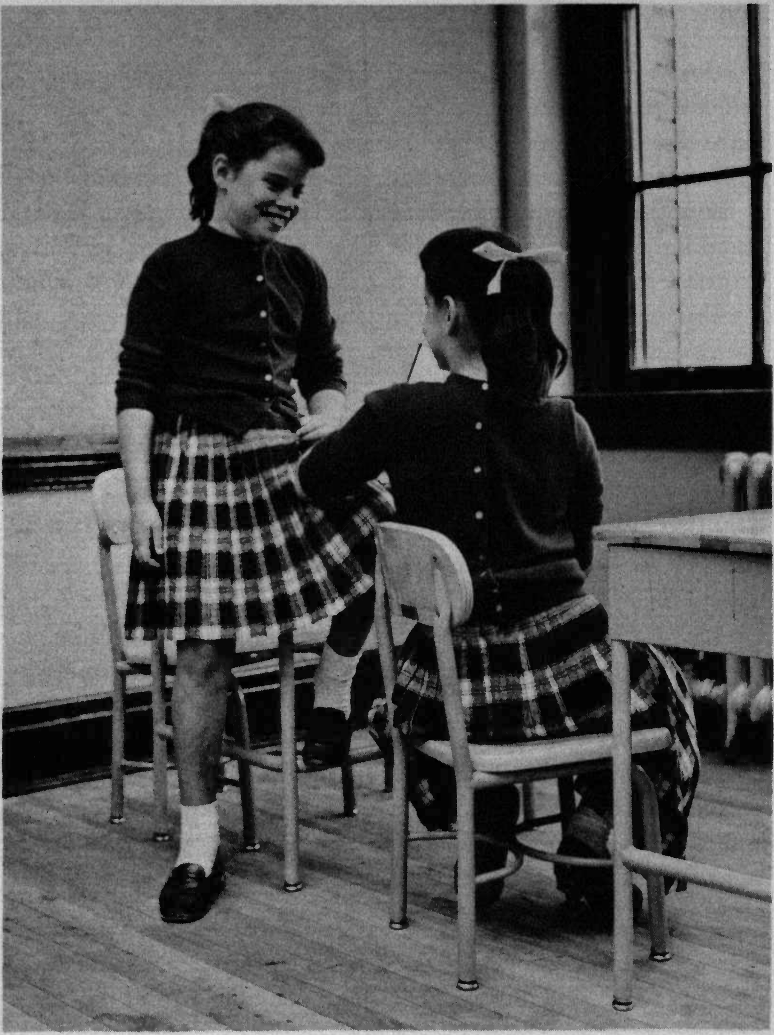
silhouette, but shadows on the face of the model and the front of the dress must be filled in with flash or reflectors. The picture should indicate what sort of activity the dress is intended for (sports, street, informal or formal evening wear) through appropriate setting and accessories. But the background must not dominate; emphasis must remain on the dress. "Busy" fabrics need plain or out-of-focus backgrounds; the sky is one of the most appropriate backgrounds, especially for sportswear. In fact, most fashion shots gain in effectiveness if taken out-of-doors.

The texture and pattern (if any) of the fabric should be evident and dressmaker details emphasized, usually by manipulation of the lighting. Usually only one or two details about a dress make it any different from hundreds of others, and good fashion

An occasional change of pace is welcome on the society page. This picture won second award in the fashion and society division of the 1958 News Pictures of the Year competition.

Herral Long, *Toledo Blade*





Julianne Baker Warren, *The Cincinnati Post and Times-Star*

This was one of a series of pictures which filled a full newspaper page on back-to-school fashions.

photos bring out these differences. Needle sharpness is essential, of course. Dark fabrics will need sidelighting, and it is best to avoid attempting to include dresses of both dark and light colored fabrics in a single shot, since the picture will pose an especially difficult problem in engraving. Filters should be used cautiously, since they may filter out the pattern.

The model's pose must show off the clothes, not the model. A natural pose is desirable if it does not conceal one of the outstanding features of the dress. An occasional shot employing arrested motion is effective; the model is seemingly captured on film as she puts on a glove or looks in her purse. In any case, the pose should be compact, with no outstretched arms.

Interiors

Like fashion photography, shooting home interiors puts the emphasis on special techniques. Best results are often achieved with the wide-angle lens and the view camera with its extra tilts and shifts. Most rooms have special points of interest that should be emphasized in pictures. The photographer must often add extra lighting effects, but with care, to avoid destroying the usual appearance of the room. This can be achieved by such devices as substituting floodlights for the regular globes in light fixtures, holding a naked (reflectorless) flashbulb near a normal light source, or bounce flash or flood. Stories and pictures showing homes of the wealthy have high reader-interest, as have word and photo reports about modest homes which have been cleverly decorated.

Parties and Groups

Special occasions, from a wedding to a golden wedding, from a birthday party for the six-year-old to the debutantes' ball, are featured on the society pages. A major difficulty has been that these events have been reported with stylistic banality, in both words and pictures, in too many newspapers. Such events occur frequently and characteristics distinguishing one from the other

Julianne Baker Warren, *The Cincinnati Post and Times-Star*

The photographer set out to record male reaction to the chemise. It wasn't hard to do.

are often difficult to uncover; but this is all the more reason to make the search. The alternative is deadly monotony.

A little "research" at the scene will usually uncover some feature that will make the picture for the golden wedding anniversary applicable to just this one couple. The trick is often simply one of including a bit more than two faces, a "prop" such as a photo album, a 50-year-old wedding present, or a little of the home background. Pictures taken with a small camera with a minimum of posing instructions often tell far more in a more interesting way about anniversaries and other parties than the posed portrait or group shot.

New ideas for children's parties can be reported in words and pictures. Newspapers occasionally ask a mother to give an early Halloween or Valentine party so the picture story that results can be timely when printed. A few newspapers have presented pictorial reports on hat-making, cake-decorating, quilting, knitting, and rug-hooking as added women's page features.

The photographer cannot escape taking some pictures of large groups, especially on society page assignments. Groups should be arranged informally, if possible, rather than in precisely ordered rows, and then photographed from above. The high camera angle will give better proportion to the picture, more even lighting when flash is used, and larger, unhidden faces.

Pictures taken at the point where society news and sports news converge will usually tell more than word stories. Here the photographer needs to employ the posed-unposed technique, a rearrangement of the subjects to point up both the society and the sports angles. Direction of the subjects should be such that when the shutter trips they do not appear to have been posing solely for the benefit of the camera's lens. This frequently involves nothing more than asking the persons to stand in suitable lighting, before a storytelling background, and then encouraging them to return their attention to the tennis match, polo game, horse race, or whatever sporting event is involved.

The traditional women's page material on clubs, the affairs of society, on food, babies, home furnishings, and fashions will

George A. Smallsreed Jr., *The Columbus Dispatch*

For a party pose, rather than lining the children up in a row, the photographer made use of a mirror to get something different and keep the children's eyes and minds off the camera. Only one light was used.

continue to be staple items, but many women's page editors are looking for features on other subjects. They are looking for something a bit more exciting, change-of-pace items that can help the woman reader escape from the routine of her life for a few moments, or educational material which provides guidance toward a broader social or cultural understanding. This frequently involves reporting on group and individual projects in the community, projects which are often highly visual and excellent subjects for photojournalism which the photographer tackles in much the same way he does a general news assignment.

xii | *The Picture Story*

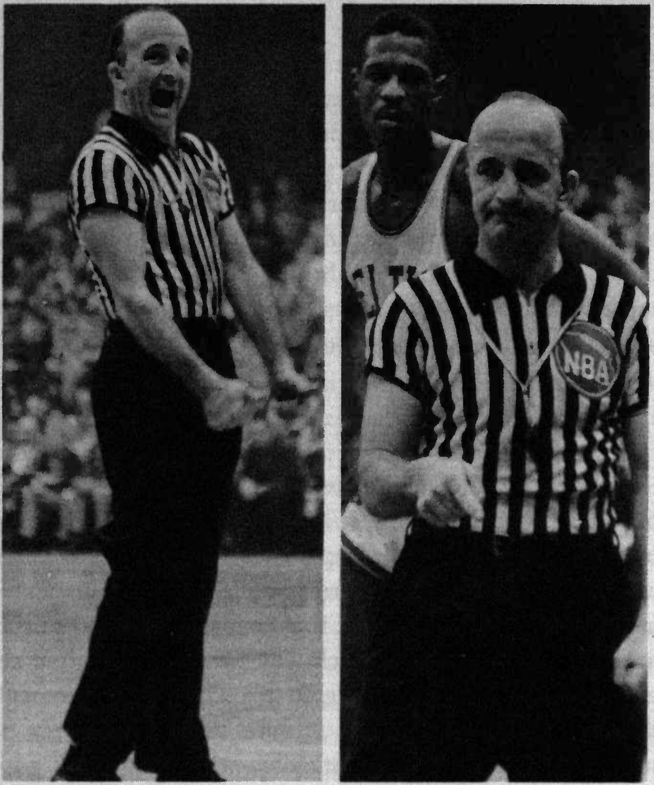
WHAT PROMPTS READERS TO SKIP or to read a particular news story in the paper? Why does the reader carefully study a picture on page two, barely glance at a picture on page three, but read every word of a story nearby? What prompts the choice? One theory suggests that a key factor (although not the only one) is identification, a psychological term which means that the reader identifies himself with places, persons, or events in the story or picture. Pictures, however, have a general advantage since they make the identification process easier for the reader. This is apparently a major factor in the success of movies and television. And it also helps explain why newspaper readership studies consistently show relatively high reader traffic halts at most news illustrations.

The reader appears to get the strongest sense of identification—or sense of participation—when the story progresses from a beginning through a series of related developments to a definite ending. This, of course, is a narrative, and a narrative can be presented in pictorial as well as word form. The still photography of today's newspaper falls considerably short of being a serious challenge to movies or television in presentation of pictorial narrative. Nevertheless, the picture story with still photography is not only possible, but entertaining and effective. Incontrovertible evidence of this has been stacking up in the bound files of *Life* and *Look* magazines. *Life* started in November, 1936. *Look*, conceived and tested in experimental dummies long before *Life* appeared, began publication two months later. Neither invented the technique of printing a sequence of still pictures on a single subject, but both have played leading roles in developing that technique, adding greater perspective and meaning to the report of the still cameraman.

Newspaper photographers and editors who attempt to copy exactly the techniques of *Life* and *Look* are ill-advised. Space dimensions and other publishing factors are obviously not the same in magazine and newspaper, but newspapermen can study and adapt the magazine techniques.

The Picture Page

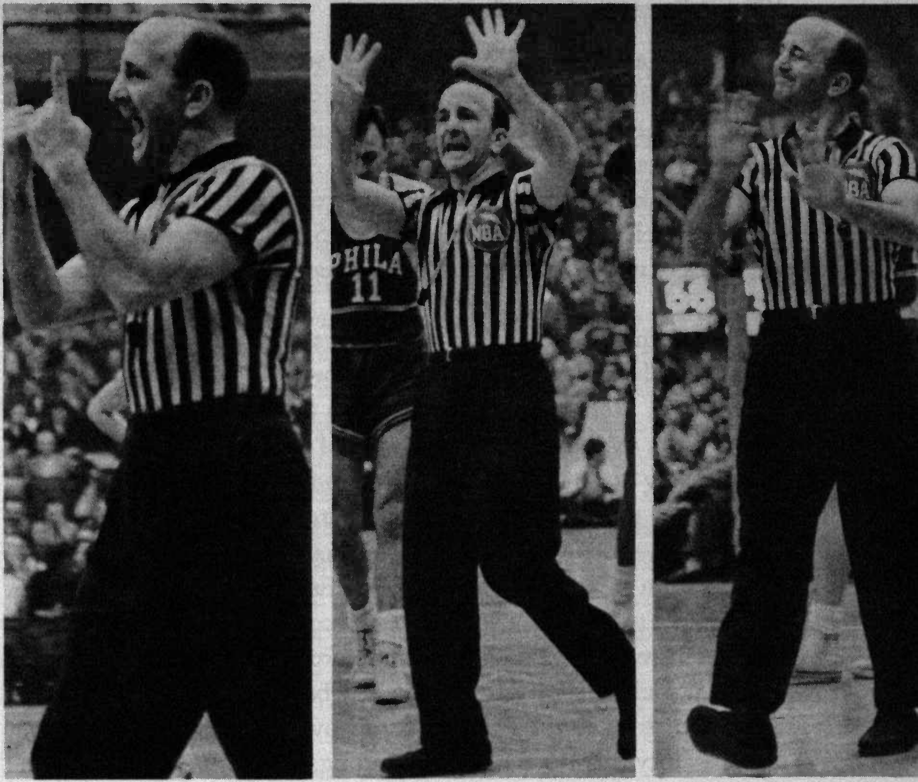
In newspapers the picture page is common, almost ubiquitous, but the picture story is still a rarity except in an encouraging number of metropolitan papers and a very few smaller ones. In most newspapers the picture page is a miscellaneous jumble, an old-fashioned variety show, that serves little good purpose except to provide an easy and quick way for the composing room to fill up a page when advertising forces a two- or four-page jump in the press order at the last minute. And the variety page often serves one bad purpose: it robs other pages of good feature photographs—or "art" as the printers call it. Readership studies show traffic is heavy on picture pages generally, but there is good reason to suspect that it is undirected, hit-and-miss traffic. The individual reader's eye probably misses more than it hits in the jumble of unrelated and actually competing pictures. The eye flicks over the page, maybe stops briefly at one picture, perhaps reads the caption for that picture, and then is gone. The page is generally thrown together hurriedly from a stock of cuts already cast from mats furnished by a syndicate. The stock has accumulated over a period of several days, waiting for this emergency. The pictures are almost invariably non-local. The ones that happen to fit together in the oblong composing form will run; those that won't fit, won't run. The pattern of the page



L. H. Whittaker Jr., *Quincy Patriot Ledger*

This picture series, which the photographer titled "Court Constable," was made by existing light with Nikon 35mm camera with 105mm lens. Exposure was 1/250 at *f*/2.8 on Plus-X.

is entirely accidental and entirely unrelated to any of the subject matter presented in pictures or cutlines. This is not an accurate description of the methods used by all newspapers, of course, but is distressingly accurate for all too many. The same purpose can be served by related pictures on a relatively timeless local subject with a bit of careful planning. The picture page then can present a unified appearance on a subject of local interest that will not only attract but most likely hold the reader's eye.



Picture Sets and Their Subjects

In photojournalism at mid-twentieth century, three types of picture groups are identifiable: the picture sequence, the picture essay, and the picture story. All are comparatively new forms, at least new in extensive use, and so their structure is still a matter of experimentation.

The picture sequence is the simplest in structure and the most limited in scope. It merely shows development of a particular action from a limited point of view and for a limited period of time. A sequence may be a series of pictures showing a person in action during a speech or interview, concentrating on facial expressions and manual gestures, or a series of pictures showing continuity of action during one particular play in a sporting event. Sequences have become standard procedure in football game coverage by many newspapers. Although all pictures are generally taken with the camera in a fixed position, the sequence can tell much more than a single shot. Special cameras are sometimes used which take many instantaneous exposures automatically.

The picture essay deals with themes or ideas which are frequently rather intangible and therefore difficult to express in visual form. Here the camera changes its point of view without altering the photographer's concept of the central theme. The subject may remain the same throughout the series, or various but related picture subjects may be treated. The most difficult aspect of the picture essay is consistency—maintaining the theme or idea from picture to picture. Like the word essay, the picture essay may treat serious sociological, economic, or cultural problems, or it may concern light or humorous topics.

It is not always easy to distinguish between the picture essay and the picture story. The two forms overlap, but in general the picture story should have a beginning, a middle, and an end; the camera moves about, the scene changes, but the central subject usually remains the same in all pictures. And during the course of the story, something happens to the subject, and this happening is reported in the pictures.

A series of pictures about waterfowl at the city park in wintertime might be a light photographic essay. But if the photographer chooses to concentrate on the activities of one particular bird or on the relationships of a small boy and a number of birds, then his series of pictures becomes a story, a narrative, if he has met the requirements of beginning, middle, and end. Whether the completed assignment turns out to be an essay or a story will depend upon the photographer's approach, and this approach should be decided upon by the photographer or by the photographer and his editor before shuttersnapping begins.

The essay and story are the most difficult and complex assignments which the photojournalist faces. Generally he moves into this phase of his work only after he has demonstrated mastery of two other steps: technique and single picture content.

Newspaper photographers and editors will find endless subjects for picture sequences, essays, and stories in their own backyards in the everyday life of their own communities. George Koshollek Jr. of the *Milwaukee Journal* won first award for newspaper feature picture stories in the 1959 News Pictures of the Year competition sponsored by the National Press Photographers Association, University of Missouri School of Journalism, and the *Encyclopaedia Britannica.* His story: a junk dealer who used horse and wagon to make his rounds in a modern city. Second award in the same category that year went to Earl Seubert of the *Minneapolis Star-Tribune* with a picture story on a country school house; third award went to James G. Conklin of the *Milwaukee Journal* for a story on a boy and his life on and near a river.

Typical picture story (or essay) subjects in nearly every community include:

An outstanding personality.
The mayor's day.
Topics in science or natural history.
An interesting geographical area.
The first (or any) grade teacher's day.
What makes a good teacher?
Town growth, or blight.
Need for better parks, better streets, better library, better schools.
Night police patrol and the fireman's 24-hour day.
The high-school prom.
The country school bus.
The school carnival.
The Parent-Teacher Association.
New aerial views of the community.
The city in spring, summer, fall, winter.
The dog pound.
A country road.

The church supper.
Sunday afternoon at the park.
The high-school football team away from home.

The list can easily be extended. Part of the secret of the successful sequence, essay, or story lies in providing the reader with a new point of view, a new way of seeing a relatively familiar subject. News is not necessarily a presentation of the previously unknown, but a fresh look at what is only partly known. Most any subject is only partly known to almost all readers. It is up to the photographer to find the fresh viewpoint.

Before the Shooting Begins

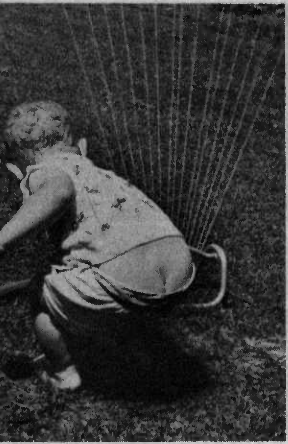
The picture sequence is generally no problem if the photographer properly prepares himself with some understanding of the subject involved and takes an advantageous position with equipment adequate for the task. But all this and more is involved in handling the picture essay and picture story. For these, special attention must be paid to visual impact. The essay or story must be planned as much as possible in advance and, in the planning, deliberately limited in scope so that the subject is manageable. The subject must be so treated as to emphasize universal appeal, and the focus, generally, must be on people doing things. A series of pictures can be taken on "Winter in Our Town" without focusing on a single human being. If pictures in the series display exceptional composition, they may draw more than a passing glance. But a series on the same topic which concentrates on what winter means in terms of human beings and their activities will have far greater appeal. People are interested first of all, in themselves and second, in other people.

Once an acceptable subject has been decided upon, the next step is research. Not research in dusty archives, but just a bit of checking for the facts. Actually much of the newspaper photographer's research is done on the picture-taking spot. He makes a quick but careful check on what the situation is as he arrives; from questioning, he learns the background for what can be expected in the future. Knowing what to expect, he can plan his shots and run less risk of missing a key picture.

From this research comes a theme or central idea for the picture essay or a plan of treatment for the picture story. Any photographer who tackles either without a fairly well defined approach in mind is certain to have a low batting average. The writer sets hands to typewriter keyboard only after he has drafted a written or mental outline that will keep his word essay or narrative on the track. The pictures of a picture story must hang together like the paragraphs of a word story, and both need a central idea line from which each paragraph (picture) hangs.

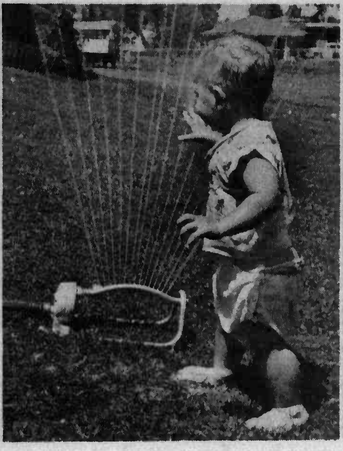
Beginners in the picture-story field will find a shooting script a useful crutch. It is generally only the experienced writer who can afford the economy of no written outline; so only the experienced photojournalist can expect repeated success with picture stories for which he has made no specific plans. The script should list important photographs to be made, and may even include rough sketches or word descriptions indicating subject arrangement, lighting, and camera angle for particular shots. Script detail will vary with the assignment. A script for a picture series on the spectators at a basketball game would of necessity be vague and general if prepared in written form at all, since few, if any, of the actual picture situations could be anticipated. If, however, the assignment involves a re-enactment of an event or deliberate staging of action for benefit of the camera, then the script can, and should be, detailed and precise. Time spent on the script may mean the saving of much more time later, and may even mean saving shooting and darkroom time because fatal gaps in an unplanned story's continuity usually appear only after negatives or prints have been assembled for editing.

The script, written or mental, helps take the guesswork out of shooting and should help the photographer find his key pic-

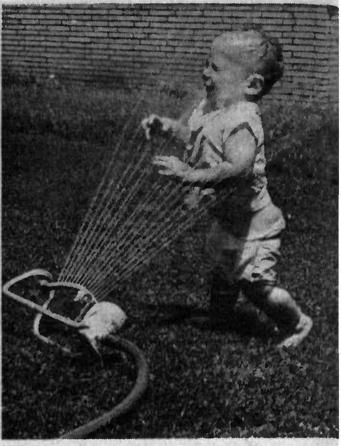


Bill Johnson, *The Denver Post*

Let's reconnoiter a bit.



There must be a way to handle this thing.



Wow! I shoulda come up from the other side.

ture, the one which will lead off the story and establish the central idea which other pictures in the series will expand upon.

Shooting the Story

The photographer who asks his editor, "How many pictures do you want on this story?" immediately marks himself as a novice at picture-story technique. The editor can probably tell him about how many pictures will be used—between six and eight will be used on the average newspaper picture page—but this number may go up or down, depending upon the treatment the photographer gives the subject. And, in any case, the editor expects at least twice as many negatives as he can use. To attempt to conserve film by shooting only enough pictures to fill the page is foolish economy. Magazine photographers regularly shoot ten times more negatives than will be used.

Story subject will have much to do with film mileage, too. Some subjects are highly visual and offer almost endless possi-

I better back up and try again.

Oh. Oh. Here comes Mom.

Wait 'til next time.

bilities for pictures. Others place exceptional strain on the camera reporter's imagination.

During shooting, the photographer watches for unanticipated developments which may provide better pictures than those set out in the script. He strives, too, for change of pace. Just as the writer avoids composing in successive sentences of similar length and similar grammatical structure, so the photographer avoids shooting all his shots from the same angle and distance. He adapts the movie technique, getting long shots, medium shots, and closeups. Some of this variety can be introduced in the darkroom in cropping the negatives.

The photographer, too, must plan and shoot for continuity, the factor that will give his picture-story coherence. This is the element that makes the picture story different from the variety show picture page. The easiest method of achieving continuity is through repeated identity; the same subject appears in all or most all of the pictures in the series. This repeated subject does not have to be a person but can be a "prop" or a background scene, such as a street corner where the human subjects change with each picture but the background remains constant. Other continuity devices include chronological development, spatial development, a combination of those two, or an emphasis upon similarities in separate picture subjects. Layout techniques, too, can provide continuity.

The Layout

The arrangement of the group of pictures on the newspaper page with text and captions is usually the responsibility of the editor: on the metropolitan paper, of the picture editor; on a smaller paper, of the news or city editor; and in some cases the photographer himself may plan the layout. In any case, the photographer will produce better material for the page if he knows something of the layout problem.

First of all, the page needs a lead picture just as a word story needs a lead paragraph. This is the key picture, the one that summarizes the theme or basic idea of the story or essay. It needs to have extra attention-getting power. Seldom do these key shots of high impact come along by themselves; rather they result from extra effort on the part of the photographer in his search for storytelling viewpoint, composition, and lighting. The key shot is the one the editor selects first and he will usually "play it big"; the halftone engraving of this picture will be larger than any others so that it will dominate the page. It provides the spot at which the reader's eye begins its travel through the page and is usually placed at the upper left of the page. In some cases there will be two good key shots in a picture story; then one of them can be used on page one with a reference in the cutlines to the number of the picture page.

The key shot does not have to be first in chronology. Like the lead of a news story, it may be the climax of the story rather than its chronological beginning. Key pictures are often the overall view (the long shot) or the closeup. The long shot establishes the scene against which the story is played, while the closeup gains in impact from its out-of-the-ordinary viewpoint.

The layout of the page after the key picture has been chosen and placed need follow no particular pattern; the arrangement should be dictated primarily by the nature of the pictures themselves. In general, the layout should be simple, uncluttered, with an arrangement that provides a logical path for the reader's eye to follow. Each picture selected for the picture story page must be judged by its contribution to the story. Occasionally, one photograph of a set may seem to be of little value when viewed alone, but within the series of pictures it may provide an important story link.

Text run with the picture story must not merely repeat the story told by the pictures; it must provide background for the pictures. In the ideal picture story or picture essay, the text alone is almost flavorless, lacks full meaning; but the pictures alone still should tell their story, although an incomplete one that leaves unanswered questions in the reader's mind, questions that usually cannot be answered in pictorial form. Nor should the same information be repeated in cutlines and text. Each part of the page—pictures, captions, cutlines, text—must contribute to the complete story, not merely parrot the information given by one or more of the other parts. Cutlines must contain interesting facts, perhaps quotations, and supplementary data expanding upon the story outline presented in each picture.

xiii The News Photographer and the Law

THE AREA OF SOCIETY'S ACTIVITIES from which the news photographer is barred, either by statute or the legal precedent of court decision, is small, even though somewhat larger than that area from which the word reporter is banned. But there is a further, largely ill-defined region in which operations with a camera, although not prohibited in advance, may lead to troubling litigation. Here word and picture reporters alike remain free from restraint prior to publication but are accountable for the consequences. On occasion, then, the camera reporter takes a calculated risk, or at least it is the wise photographer who makes calculations before snapping the shutter. He should be able to trust his own sense of decency and fair play in most questionable situations, but in others his calculations had best be based on knowledge of what limitations society has deemed fit to place on his activities.

The Right of Privacy

One of these limitations involves that complex and slippery concept known as the right of privacy. This individual and, in the prevailing twentieth century view, natural right has been the subject for legislation in only a minority of states, but in approximately one-half the states it has won recognition through court decisions and thus as a result has become the law in those states. Harold L. Cross, special counsel for the American Society of Newspaper Editors, saw "clear trends toward more widespread recognition" of the right of privacy and "its sterner application against published matter." It also seems clear that a major reason for these trends is the expanding use of the camera in journalism.

The camera, in fact, played a major role in bringing the right of privacy concept into American law near the beginning of the twentieth century. In 1890 this right was given its first clearcut and forceful definition in an article written by Louis D. Brandeis, later of the United States Supreme Court, and Samuel D. Warren. (4 *Harvard Law Review* 193). Noting that "the latest advances in photographic art have rendered it possible to take pictures surreptitiously," the authors suggested that existing legal restraints could not adequately deal with "the overstepping of the press of the obvious bounds of propriety and decency." They also wrote that "instantaneous photographs and newspaper enterprise have invaded the sacred precincts of private and domestic life; and numerous mechanical devices threaten to make good the prediction that 'what is whispered in the closet shall be proclaimed from the house-tops.' For years there has been a feeling that the law must afford some remedy for the unauthorized circulation of portraits of private persons."

The first official recognition of the right of privacy came in the field of advertising. In 1903, the New York State legislature approved sections of a Civil Rights Law prohibiting the use of a living person's name or picture for advertising or purposes of trade without permission. In 1905, Georgia's Supreme Court upheld a claim for damages for an unauthorized use of a picture in advertising. (Pavesich v. New England Insurance Co., 122 Ga. 190, 50 S.E. 68, 69 L.R.A. 101, 106 Am. St. Rep. 104).

Since the Georgia case, a fairly substantial body of case law in many jurisdictions has both extended and limited the right of privacy. Inevitably disputes reached the courts over unauthorized use of pictures in the news columns and here the courts have ruled that the right of the public to know is generally paramount whenever an event of legitimate public interest is involved. Publication of a photograph as news or information does not constitute publication for "trade purposes" even though the publisher seeks a profit from his newspaper or magazine.

As a Kentucky judge pointed out in one right of privacy decision, the right "has not been concretely defined, and probably is not subject to a concrete definition, but it is generally recognized as the right to be let alone, that is, the right of a person to be free from unwarranted publicity, or the right to live without unwarranted interference by the public about matters with which the public is not necessarily concerned." (Brents v. Morgan, 1927; 221 Ky. 765, 299 S.W. 967, 55 A.L.R. 964). What constitutes "unwarranted publicity" or "unwarranted interference" in private matters must necessarily depend, it would seem, on the circumstances involved in each case as the courts attempt to strike a balance between the public's right to know and the individual's right to be let alone.

Major points established in cases to date would seem to be these:

The right of privacy is violated when a picture is used in advertising without consent of the person pictured.

The right of privacy may be violated when a picture is used primarily to amuse and astonish the reader rather than to disseminate news or information.

The right of privacy may be violated if a picture accompanies, but has only a very faint connection with, a special feature article, such as a travel story, interpretive report on social conditions, or historical narrative. Pulling old pictures out of the files to use with such articles calls for caution. It would seem that the test here is: Will use of the photo shock the ordinary sense of decency and propriety?

The right of privacy may be violated through pictures taken in a clinic or hospital if patients pictured are recognizable or otherwise identified. In general, it is risky to publish pictures of persons with physical ailments or disfigurement without consent, unless the individuals involved have lost the claim to privacy through participation, voluntary or otherwise, in an event of legitimate public interest. A Missouri Supreme Court decision reads: "Certainly if there is any

Charles Rollins, *The Wichita Eagle*

This picture was made in a hospital emergency room with consent of both injured man and hospital authorities. The news media, hospital council, and medical society of Wichita, Kansas, have worked out a "Code of Cooperation" for better communication. Picture was taken with a Speed Graphic, using bounce electronic flash at 1/50, *f*/8 on Royal Pan film.

right of privacy at all, it should include the right to obtain medical treatment at home or in a hospital for an individual personal condition (at least if it is not contagious or dangerous to others) without personal publicity." (Barber v. Time, Inc., 1942; 348 Mo. 1199, 159 S.W. 2d 291). A person accused of a crime, but hospitalized for treatment of injuries, may ordinarily be photographed without consent. Pictures of accident victims may shock readers and even violate the "good taste" standards of some, but no question of privacy appears to exist in these cases.

A person attending a public event may be pictured as part of the audience, even though he might prefer to keep his attendance unknown to one or more readers of the newspaper. This same person, however, cannot be singled out for special photographic attention without consent, unless he is a public personage or is otherwise newsworthy at that moment.

A person on a public street, in a hotel lobby, or in some other public place where pictures are not otherwise prohibited may be photographed. In such a case the individual has lent himself to the general scene.

Public figures, such as politicians and actors, have little or no privacy, except that their pictures cannot be used in advertising without their consent.

Photographers should also keep in mind that although the right of privacy may not be involved, other rights may be: such rights as are covered by breach of contract, breach of trust or confidence, property rights, and libel. For example, a news photographer may take a portrait at the request of the subject and receive payment from the subject. If the photographer later were to allow his newspaper to use this portrait he very possibly would find himself sued for breach of contract or trust.

A California dairy employee won $27,813.90 in damages from a newspaper whose photographer fired a flashbulb which stampeded a cow that ran over the dairy employee.

Special limitations on photography may legally be enforced in what are otherwise generally considered public places: museums, theaters, and sports arenas.

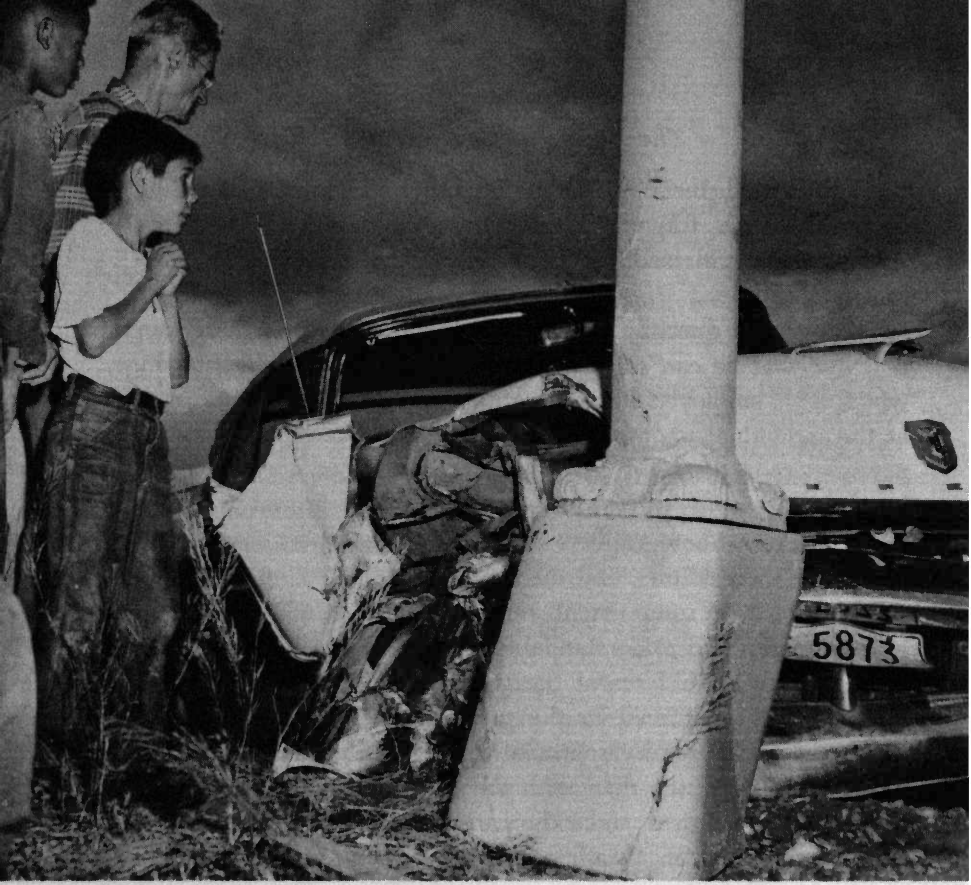
Tragedy and the Camera

Closely related to the right of privacy problem is the question of the news photographer's role in covering tragedies. How far should the photographer go in picturing the grief of survivors? Court decisions in this area indicate that most judges are reluctant to place limitations on the picture reporter when he is covering accidents or disasters, which invariably have a strong element of public interest. Persons who become involved in such events, however unwillingly, "are subject to the privileges which publishers have to satisfy the curiosity of the public as to their leaders, heroes, villains, and victims." (76 N.W. 2d 762). But the favorable court decisions have not entirely relieved the minds of photographers and editors, for there still remains the moral question involved. One newsman put the question this way: "What business has a photographer to make a living by treating human tragedy as a natural resource?" Newspaper readers have criticized the press for "commercializing on misfortune."

This is not a question that the photojournalist can ignore, nor is it one that he can solve alone. It involves the publication by which he is employed since the criticism is not directed so much at the individual photographer as it is at his newspaper and at newspapers in general. "The photographer is but a symbol of a larger intruder—the press," in the phrase of an editorial in *Editor and Publisher.* Photographers have a right to expect some guidance from their editors, and the attitudes and working principles adopted must, to some extent, remain individual and unique.

It is human and understandable that those involved in a personal tragedy should resent the presence of a camera, and this resentment is reinforced by the presence of a crowd of eyewitnesses, since the total resentment against all prying eyes tends to concentrate on the man with the camera. This concentration is not wholly illogical, since the camera represents an extension of public invasion in an affair which the grief-stricken can only view as purely private.

But to assert that the photographer is there merely to build newspaper profits by pandering to sadistic tastes is a misstatement of the case. The critics who attack the press for vivid reporting of the unpleasant seldom go so far as to suggest that the press ignore the unpleasant entirely. What they fail to realize is that the full significance of the unpleasant can seldom be conveyed without inclusion of at least some of the detail. The ugly aftermath of tragedy must often be portrayed if the press is to live up to its responsibility of furnishing an accurate record to which society can react. This is not a recommendation for a spate of gory pictures. Occasionally, such photos serve the cause of safety by stressing consequences, but repeated publication would only repel or harden readers.



Ed Maker, *The Denver Post*

Impact-filled, storytelling pictures at the scene of an accident are not always those of the victims. Expressions on the faces of the bystanders will often depict the awesomeness of the incident.

It is true that photographers sometimes have trampled thoughtlessly on the dignity of tragedy's victims. As one photojournalist phrased it: "There's no need to bruise the already bruised." There is room for compromise between the wishes of the parent of the drowned child and the desire of the reporter to present a complete and accurate account of the tragedy. Attempting to force the bewildered and numbed parents into a pose, representing the photographer's preconceived notion of how they should look under the circumstances, is inexcusable. The photographer should operate as unobtrusively as possible. A long focal-length lens on a 35mm camera is a great aid in getting detail-revealing closeups, while overall shots can capture the mood of the scene and stay well within the bounds of good taste.

Libel

Truth is a defense in civil libel cases. Photographs are graphic representations of actual scenes and hence truthful. Therefore, no liability for libel damages should ever develop from a photograph.

This syllogism is neat and attractive but, unfortunately, fallacious. Successful libel suits can be—and have been—based on photographs. Photographs can subject a person to ridicule, contempt, or hatred just as effectively as words. Photographs can lie, or at least appear to lie. Photographs in conjunction with printed words may result in false and libelous identification or imputation.

Rarely is a published photograph libelous in itself; but it has happened. Undoubtedly the most famous case of this sort involved a man who was paid for a cigarette endorsement. For an advertisement he was photographed holding a saddle in front of him. In the photograph, quite by accident, the saddle's white girth appeared to be attached to the man, giving, in the court's words, a "grotesque, monstrous, and obscene" effect. It was libelous. (82 F. 2d 154, 1936).

Photographs considered with accompanying words have resulted in many libel cases. The photograph itself may be harmless, but the caption or accompanying article may add the damaging element. Newspapers need to exercise particular care that the right names appear with all pictures published and to make sure that captions do not imply criminal activity on the part of innocent persons in group pictures.

The photograph of a married woman was used above the words "Fatty Arbuckle's Lady Love." It was libelous. (Sydney v. MacFadden News Publishing Corp., 1926; 242 N.Y. 208).

The photograph of a wrestler was printed next to that of a gorilla with the caption: "Not fundamentally different in physique." It was libelous. (Zbyszko v. N.Y. American, 1930; 239 N.Y.S. 411).

The photograph of a man who was not even an auctioneer was printed with an article about dishonest auctions. It was libelous. (Jackson v. Consumers Publications, 1932; 11 N.Y.S. 2d 462).

A news story about an Italian bandit was accompanied by a photograph identified as a recent portrait of the brigand. The photograph was actually that of a man named Pietro de Sando, who sued for libel and the court agreed that he had good cause. (De Sando v. New York Herald Co., 88 N.Y. App. Div. 492).

For their own protection, photographers should note that no libel ensues unless a defamatory photograph is "published." However, "publication" in the eyes of the law does not necessarily mean the photograph was printed by newspaper or magazine. Publication is completed if a third person, someone other than the photographer and the picture's subject, sees the photograph.

Censorship by Violence

Few persons who become involved in newsworthy events have read the court decisions on the right of privacy and libel. Rather than a court summons later, the photographer more often faces objections and obstructions at the scene, either from individuals or from mob action.

A church deacon attempted to block the view of a staff photographer of a Danville, Va., newspaper when the newsman attempted to take pictures at the city's first bi-racial, non-segregated church service. The deacon was later fined $25 for breach of the peace.

Hoodlums attacked and smashed the camera of a photographer covering a prize fight in Philadelphia.

A Los Angeles photographer taking pictures outside a probate court was assaulted by a movie actor. The actor's punishment: ten days in jail, two years probation, $250 fine.

A television-radio announcer reacted violently when his picture was taken outside a New York restaurant; he smashed the photographer's camera.

An ex-Marine captain and husband of a witness to an attempted gangland killing smashed the cameras of two photographers outside a Newark, N.J., courtroom.

Mobs have obstructed or attempted to obstruct the work of photographers; the man with the camera is doubly feared by those who rely upon the obscurity of the mob to hide their unlawful behavior.

Almost without exception in these cases, the photographer is within his legal rights, but this or even a subsequent fine or jail sentence for those who illegally thwart the camera reporter is small solace for bruises, missed pictures, or smashed equipment. The photographer who can manage to get the picture without attracting physical violence is serving best the public, his newspaper, and himself.

Police and the Press

Difficulties also occasionally arise with police authorities, both civilian and military. In many of these cases, either one or both of the following are present: an over-officious policeman or an unnecessarily meddlesome photographer.

A North Dakota sheriff, as he brought a murder suspect to the state crime lab in Bismarck, warned a press photographer: "You can't take my picture." The photographer ignored the warning. The sheriff knocked the camera to the floor. The sheriff was later arrested on a warrant charging assault; he pleaded guilty.

A Kentucky photographer covered a police raid on a gambling house, found the town's police chief already there and just as surprised as other patrons by the raid. One of the photographer's pictures included the police chief, who seized the camera, ruined the film, and had the photographer jailed. The police chief was later fined $1,000 for violating the photographer's civil rights.

In Iowa, photographers were prevented by highway patrolmen and National Guardsmen from taking closeups at the scene of a civilian airliner crash. When airline officials arrived, photographers were given a free hand.

In Pennsylvania, firemen blocked the view of a photographer attempting to take pictures of a crash involving two fire trucks. Firemen even threw tarps over the smashed trucks.

In Philadelphia, police forcibly prevented photographers from taking pictures as they bounced a heckler from a political rally. As an aftermath of this case, Philadelphia's city solicitor issued a formal opinion in which he told the police commissioner: "You are advised that the police have the duty to take all measures reasonably necessary . . . to protect the public. . . . Performance of this duty is clearly a proper subject of news reporting. . . . Meaningful freedom of the press includes the right to photograph and disseminate pictures of public events occurring in public places. . . ."

Civilian police and firemen undoubtedly have the right to restrict any activity of photographers that might interfere with police action. Experienced press photographers have found the greatest long-term gains come from a deliberate program designed to earn the respect and cooperation of police and firemen. Photographers must follow police directions in parking near the scene of accident, fire, or major disaster. A record of cooperation often will earn special consideration if the photographer's car is marked by a symbol police have learned to recognize. If newspapers make sure that police and firemen have some understanding of the deadline problem, better cooperation usually results at the scene of a news event. Photographers must recognize that their movements at the crime scene may have to be restricted when the preservation of clues is involved. Police cannot be expected to halt their investigation to allow picture-taking. A little patience plus a little conversation with an officer will result almost invariably in a satisfactory agreement. News photographers can also, on occasion, help the police, shooting pictures at the scene that the police might not otherwise get. Photographers have also won the approval of police and firemen with pictorial support of traffic control, safety promotion, and anti-delinquency campaigns.

Although the individual press photographer can do the most to gain police cooperation, joint police-press or fire department-press meetings have improved relationships in a number of cities. Panel discussions of police-fire-press relations were started by the National Press Photographers Association at the Philadelphia Police Academy and then spread to other cities. Photographers have reported improved cooperation after each such meeting.

There has as yet been no serious challenge of the right of police authorities to regulate activities within a jail or prison, including a ban on cameras. At executions, word reporters are traditionally admitted as witnesses, but camera reporters, no. On occasion, photographers have attempted to circumvent this rule, with sensational success, as in the case of a shot taken of Ruth Snyder's execution in 1928. The picture was taken by a New York *Daily News* photographer. In most states, there are no laws prohibiting pictures of executions, but to date there has been no serious legal challenge of any warden's word that none can be taken. It is doubtful if courts or public opinion would support a demand for picture coverage of death row.

Federal Regulations

Military police have clashed on occasion with civilian news photographers. If both MPs and photographers are familiar with the military regulations there should be little cause for conflict.* The regulations of Navy, Army, and Air Force are much the same. They provide authority for military officers to ban photography on military posts, installations, or naval vessels. If photography is permitted, it may be only under military supervision, and the authorities may ask to review all prints before publication. Outside military installations, the regulations clearly state, military officers have no authority to prevent picture reporting. However, officers are charged with the responsibility of covering or removing classified material before pictures are taken. If this is impossible, then photographers are to be asked not to take pictures. If a photographer persists, he is to be warned he may be prosecuted under Title 18, Section 793(e) of the United States Code and faces a possible maximum fine of $10,000 or a ten-year prison sentence, or both.

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* See Navy Department Regulations, Section 0818; Army Special Regulations No. 360-5-15, and Air Force Regulations No. 190-10, Paragraph 4.

American military airmen carry a small pocket card summarizing Air Force regulations, telling them how to deal with the press at the scene of air crashes. This was done at the urging of the National Press Photographers Association and the cards spell out the rights of the news photographer.

Other federal but non-military regulations governing photography have been relaxed somewhat in recent years. Photographers may now take pictures in federal buildings without first obtaining permission of the building custodian. However, this turns the camera reporter loose only in the building corridors and sometimes not even there. He still must contend with security regulations and obtain permission to take pictures within offices. Nor may he take pictures in federal courtrooms during court sessions; in fact federal judges have sometimes extended this ban to include the building corridors and the grounds surrounding the building.

Congress has not infrequently prohibited photography. Secret committee sessions occur occasionally from which all reporters are barred; committee sessions from which only camera reporters are banned are more frequent. However, in general, photographic coverage of both houses of Congress has been gradually allowed to expand. Noteworthy in Washington was the executive department's decision to permit picture coverage of President Eisenhower's news conferences.

The United States Code prohibits reproductions "in the likeness of" any "obligation or security of the United States." (Title 18, United States Code, Sec. 474) The purpose, obviously, is to prevent counterfeiting; nevertheless, it is a rule of which the news photographer should be aware. To be safe, the photographer simply avoids photographing such items as national currency or federal bonds. However, currency has been included as a "prop" in news pictures when the currency represented an essential part of the story to be told. A news picture which shows a person holding one or a number of $10 bills is not likely to result in prosecution since the degree of "likeness" to the actual currency is not such as to make counterfeiting an even remote possibility. Any sort of pictures may be taken of coins since passage of an amendment to the code in 1951.

Camera Reporter in Court

Photography is prohibited, not by law but by judicial rules of procedure, in most of the nation's courtrooms. But an increasingly significant number of judges are relaxing the rules.

Many repercussions rippled outward from a district court room in Flemington, N.J., in 1934. It was there that Bruno Hauptmann was tried and found guilty of the kidnapping and murder of the Lindbergh child. The carnival atmosphere surrounding the trial, an atmosphere supplied only in part by the press, led the nation's attorneys to an unfriendly view of news photography. In 1937, the American Bar Association adopted as part of its Canons of Judicial Ethics:

> Canon 35. Improper Publicizing of Court Proceedings. Proceedings in court should be conducted with fitting dignity and decorum. The taking of photographs in the court room, during sessions of the court or recesses between sessions, and the broadcasting or televising of court proceedings are calculated to detract from the essential dignity of the proceedings, distract the witness in giving his testimony, degrade the court, and create misconceptions with respect thereto in the mind of the public and should not be permitted.

An amendment adopted in 1952 reads:

> Provided that this restriction shall not apply to the broadcasting or televising, under the supervision of the court, of such portions of

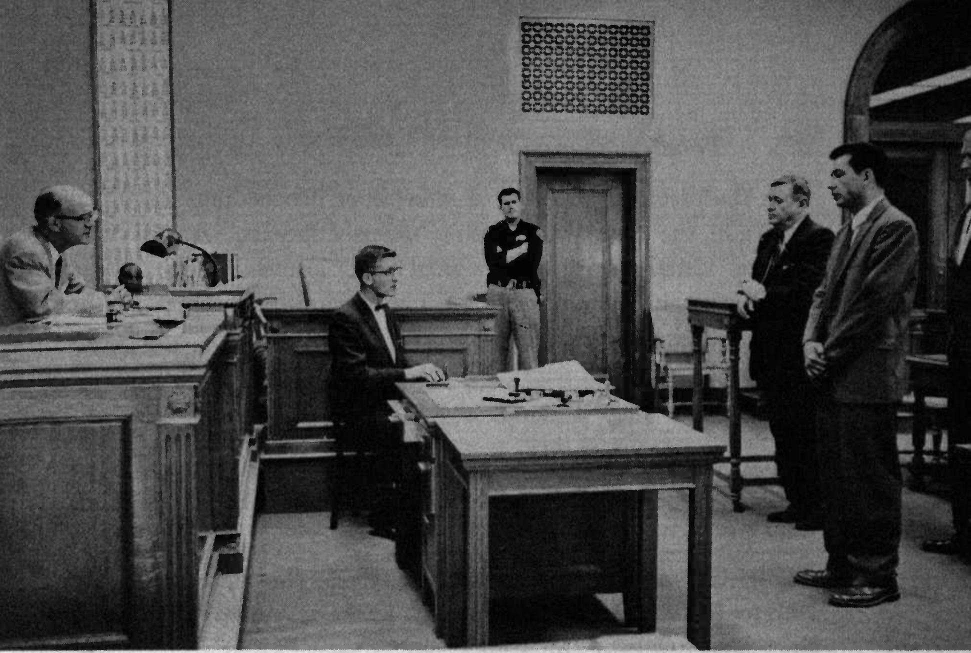
> naturalization proceedings (other than the interrogation of applicants) as are designed and carried out exclusively as a ceremony for the purpose of publicly demonstrating in an impressive manner the essential dignity and the serious nature of naturalization.

The Canons of Judicial Ethics are not law; they form, rather, a guide for the nation's judges and attorneys, and have been accepted as such in a majority of the non-federal jurisdictions. In some states supreme courts have formally adopted Canon 35 and thus established it as an enforceable court ruling within those states. Violation of the rule can lead to a contempt citation and that in turn to a possible fine or jail sentence.

Federal courts are governed by Rule 53 of the Rules of Criminal Procedure adopted by the United States Supreme Court in 1945:

> The taking of photographs in the courtroom during the progress of judicial proceedings or radio broadcasting of judicial proceedings from the courtroom shall not be permitted by the courts.

Developments in photojournalism since 1940, including improvements in equipment and technique, prompted photographers to challenge these rules. Small-camera, no-flash photography is no more distracting in the courtroom than the reporter's pencil. The National Press Photographers Association, individual newspapers, and individual newspapermen, and other organizations representing the mass media have campaigned for a change in Canon 35. A notable example was the subtle campaign of public relations conducted by William Keel, court reporter for the *Nashville Tennessean.* Keel's patient perseverance won a notable breakthrough in 1955 when Criminal Court Judge Charles Gilbert admitted photographers during sessions in his Nashville courtroom. In Colorado, in 1956 the state Supreme Court ordered a formal hearing on courtroom photography. Demonstrations staged by newspaper and television photographers, supported by representatives of the National Press Photographers Association, convinced Justice O. Otto Moore,



Ed Maker, *The Denver Post*

Existing courtroom light, a Leica camera and Plus X film in capable steady hands can produce a perfect quality picture of the climax of a trial without any effect on the decorum of the court.

who conducted the hearing for the court, that Canon 35 was outmoded and based on an "assumption of facts . . . wholly without support in reality." The rule substituted by the Colorado Supreme Court for Canon 35 leaves the decision on courtroom photography up to the judge, although no witness or juror is to be photographed over "his expressed objection." A year and a half after the new rule was announced, Justice Moore reported photographic coverage at Colorado trials had been in "unquestioned good taste" and brought no complaints that justice was hampered.

The National Press Photographers Association and other interested groups and individuals carried the fight against Canon 35 to bar association meetings. In 1957, a special committee of the American Bar Foundation recommended a change, but only in wording—not in effect. The committee decided that while modern photography was not necessarily "calculated to detract from the essential dignity" of courtroom proceedings, would not "degrade the court" or "create misconceptions," it still would "create visual and psychological distractions which have no justification in a court of law." The committee proposed a new Canon 35 to read:

> The taking of photographs in the courtroom during the progress of judicial proceedings or during any recess thereof and the transmitting or sound-recording of such proceedings for broadcasting by radio or television introduce extraneous influences which tend to have a detrimental psychological effect on the participants and to divert them from the proper objectives of the trial; they should not be permitted.

This did nothing to allay press photographer's objections. The National Press Photographers Association countered with its own suggested substitute for Canon 35:

> . . . Acknowledging that the proper dissemination of news by a free press is not in and of itself limited solely to the mere printed word, and in light of present scientific advancements, the visual record co-equally with the printed word is now fundamentally part of the publication and dissemination of news by a free press, we recognize that the taking of photographs in a courtroom by accredited press photographers, may in proper circumstances have a salutary effect upon the public to whose enlightenment, the functions of a free press contribute so vitally.
>
> Where, therefore, in the opinion of the judge presiding at a trial or hearing, it appears that photographs can be taken by accredited press photographers without interfering with the regular and customary procedure of the trial or hearing in that court, and without creating any misconceptions with regard thereto, such photographs may be taken therein during the course of the trial or proceeding, as may be permitted by said Court.

Judge Gilbert of Nashville adopted the NPPA proposal as the rule for his court. But the House of Delegates of the American Bar Association postponed action for further study. Meanwhile, more and more judges are permitting photography during court sessions; at least one courtroom in every state has been open to photographers at one time or another.

Camera reporters can best support their arguments by performance. J. R. Wiggins, managing editor of the *Washington Post and Times Herald,* told delegates to the National Press Photographers Association convention in 1954:

> Whenever a photographer unnecessarily interferes with those who are present at a public function, obstructs their vision, interferes with their hearing, or otherwise distracts them, he is helping to defer the day when cameras will be accepted in courts. The newspaper profession, I am afraid I must admit, has continued to use equipment that by its very nature causes disturbance, in spite of the fact that equipment equally efficient and far less conspicuous is available. We constantly say to lawyers and to judges that modern photo equipment is no more conspicuous than a pen or pencil; but we almost invariably use cameras that create real disturbance at public events.

The National Press Photographers Association drafted a set of ten commandments or "Canons of Courtroom Ethics" for press photographers:

1. Have a conference with the judge who will preside. This conference should be held at least two or three days in advance of the trial. Discuss your problems with him, reach an understanding on the rules he has in mind, and then abide by them.
2. Court officers and bailiffs can be your greatest helpers. Be sure that they are acquainted with the rules and conditions of coverage set forth by the judge.
3. Dress conservatively and inconspicuously. Your cameras may tend to draw attention to yourself so it is important that your personal appearance present a good impression in conformity with your dignified behavior.
4. Do not move from one spot in the courtroom to another while the trial is in progress. Choose a good spot beforehand, then stay there until a recess. Variety in picture coverage may be obtained by changing lenses, if available. Put those lenses to work rather than your feet.
5. Don't work close to the subject. The effect of closeups can be obtained by using telephoto lenses or by greater enlargement in printing.
6. Conduct yourself as a gentleman at all times. While in a trial courtroom, news photographers are under the jurisdiction of the court.

Just as any other spectators, they may be held in contempt if they create a disturbance.

7. In the case of trials which have nationwide interest, the trial judge may require photographers to pool their pictures as a condition of coverage. Naturally this is distasteful, but at times unavoidable. Don't fight it. Your editor would rather have pooled pictures than none at all.

8. After the trial is over, show your appreciation to the judge by taking time to visit him in his chambers and thank him for his cooperation. This is good public relations as well as good manners.

9. Roll film cameras, because of their smaller size, are less conspicuous than most sheet film cameras, but the type of camera is of less importance than the manner in which it is used. Avoid the distracting motions of continued eye-level focusing and aiming. With a fixed subject, focus carefully once, then point the camera from waist level or from a table or railing for triggering. If, because of circumstances, eye-level aiming is necessary, movements should be slow and deliberate so as to minimize attracting attention.

10. Flash must not be used under any circumstances in a courtroom while court is in session. Even though the judge grants permission to use flash, do not use it. It will be distracting to the participants and spectators. If possible, measure the light in the courtroom and determine the correct exposure through tests before the trial.

xiv | *Careers in Photojournalism*

YOU WILL LOOK IN VAIN FOR THE word, photojournalism, in even late editions of most dictionaries and encyclopedias. The evolution from picture-taking to picture reporting has been recent and is as yet unrecognized in some quarters. Prior to the 1930's, cuts of photographs were inserted in newspapers for two principal reasons: as page ornaments and as a rather formal record of the appearance of persons and things. Then in the decade of the "Great Depression," the work of a handful of photographers established that pictures can be the equal, not the mere satellites, of words. Finally, the photographers from magazines, armed forces, and news services presented the world with an unforgettably vivid and meaningful record of World War II, and photography was established as an important and creative force in journalism. The term photojournalism is an attempt to convey the significance of this new concept of the function of photography in reporting and commentary.

With the change came new respect for the press photographer. The old stereotype of "Snappy," the news photographer, a disheveled, baggy-trousered character with a perpetual sneer of cynical disrespect on his face, would no longer fit—if it ever did. The man who had once been considered a mere shutter-snapper was now a journalist. With new respect came new status; photographers began getting frequent credit lines, equal pay with reporters, and, to the envy of the man with the pencil, were furnished company-owned, radio-equipped automobiles. The new role of photography and the photographer's respected status attracted new talent. Here was a challenge to communicate an intensity of experience created by the fact that the photographer must work in close contact with the subject of his reporting; he cannot function through second- or third-hand contact.

Both an indication and a result of the change from picture-taking to photojournalism was the founding in 1945 of the National Press Photographers Association. A ten-city telephone hookup linking photographers in New York, Boston, Chicago, Los Angeles, San Francisco, Philadelphia, Miami, Wichita, Detroit, and Washington, D.C., led to the organizational convention in Atlantic City in 1946. Growth was rapid: 1,300 members by the second convention in 1947 and more than 2,700 members by 1960. The association has been a force in a number of areas:

In education, with annual news photography "short courses" conducted at various points across the nation, with a student affiliate program, and with an audio-visual loan library.

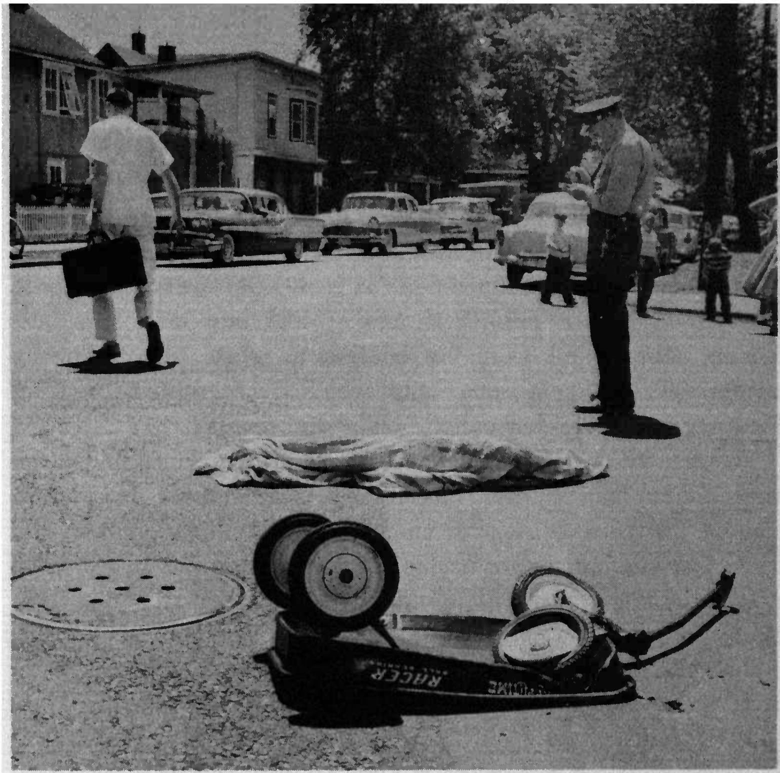
In police-press relations, with joint photographer-police seminars in a number of cities working out cooperative methods of operation for mutual non-interference.

In freedom of information activities, principally in getting equal access for pencil and camera reporters, with special emphasis on a campaign against the legal profession's Canon 35 barring photography from courtrooms.

In recognition of the press photographer, through the association's publication, *National Press Photographer,* and through the annual "News Pictures of the Year" competition conducted in cooperation with *Encyclopaedia Britannica* and, in recent years, with the University of Missouri School of Journalism.

A Creative Force

Having borrowed its name from photography and journalism, photojournalism has in return been the source of creative fermentation in those two fields. Photojournalism has been called the most significant development in journalistic reporting in the twentieth century, although the rise of interpretive reporting with words, a development that occurred almost simultaneously



William Seaman, *Minneapolis Star*

Too late—the doctor walked away. This picture won a number of prizes, including a Pulitzer in 1959 and has been used in safety campaigns in several cities.

with the evolution of photojournalism, might be considered of equal importance. But it has been in picture reporting that journalism since 1935 has seen the greatest spirit of experimentation, open-mindedness, and pioneering. And today, photojournalism is the most dramatic and influential movement in the field of photography itself.

Television has stimulated the growth of photojournalism. Rather than destroying the effectiveness of the still picture in newspapers, television has helped free the press photographer from some of the shackles of habit and tradition, helped free him from the stereotyped photograph, the cliché, and helped place new emphasis on realism and meaning at a time when new equipment was in plentiful supply to make this possible. The newspaper photographer responded to the challenge of TV with fewer foolish cries of anguish and more imagination than did most other newspaper craftsmen. At least this was true on those newspapers where publishers and editors had outgrown outmoded notions and were not content to waste photographer's efforts with what Joseph Costa, chief photographer of King Features Syndicate, has called "philatelic" display.

The revolution has not been confined to magazines and large metropolitan newspapers. Significant improvement in picture content has been evident in small dailies, weeklies, and in the trade journals and house organs. Some publications in the field of the specialized press, including business papers, trade journals, house papers and magazines, technical and professional publications, have provided pictorial leadership for those who cared to look. Improvements in the engraving process, notably the Fairchild Scan-a-graver, have made picture reproduction no more costly than reproducing text.

But the greatest gains for photography in journalism still lie ahead. Editorial understanding of photojournalism is still not widespread. Editors must be willing to invest time and talent to secure great pictures. The pencil reporter sits through complete interview, meeting, or sports event to get his story. But the photographer is frequently expected to "cover" the same events with only five to ten minutes allowed at the scene before he must hustle off to the next assignment. Photographers, too, deserve to be told what each assignment is about, why a picture is being taken, and how it may be used. Bad assignments beget bad pictures. The chief photographer of a metropolitan newspaper received this memo from a member of his staff:

Photographer was assigned to cover air show with no specific instructions. He arrived at the field before noon, and between that time and 2 P.M. made 14 exposures of crowd scenes, new aircraft and several features involving children. These plates were sent in by special car from the field. Twelve exposures were printed and on the city desk by 4 P.M. The remainder of the show was covered by the photographer who made an additional 16 exposures, then drove to the office and processed 10 prints that were on the city desk at 6:30 P.M. He was then informed by the acting editor that he was only at the show in case of a crash and that all air show pictures had only planes in them and didn't merit publication. Lost: seven man-hours, 30 sheets of film, and one photographer's morale.

But effort on the part of photographers is also needed, to sell editors on the better use of pictures—good pictures. Only photographers can demonstrate what photojournalism is about; only photographers can build story interest and commanding composition into pictures. Photographers must avoid repeating the same old patterns and themes in photographs. The year after the prize-winning picture appeared of a hole in the shoe sole of a presidential candidate, judges counted 27 pictures of holes in shoe soles among entries in the Inland Daily Press Association news photography contest. Joseph Costa once warned his fellow photojournalists: "You can use the camera merely as an instrument of record, or you can use it with imagination. Remember: when you're making imaginative pictures you are on your own. You can't be a copycat."

According to one editor, success in photojournalism comes from:

Intuitive sympathy and identification with the subjects of a story.

Willingness to risk danger and physical discomfort.

Ability to use camera equipment, reportorial skills, and every imaginable production device to convey exact meanings.

Ability to plan for the expected and the unexpected.

Luck (which means being like a good ball team that forces its own breaks).

> Knowing when to be bold and when to tread softly (being psychologically hep).
>
> Ability to share with the reader a sense of participation, whether in mountain climbing or deep sea photography, or in the more familiar adventures of everyday life.
>
> An insatiable curiosity.
>
> An appreciation of the American right to know and enjoy what is going on.*

He might also have added stamina, physical stamina, but also the mental sort that sustains a persistent search for something better. Lloyd B. Walton, *Indianapolis Times* chief photographer, wrote in one of a series of memos to his staff of camera reporters:

> Good ideas have to be worked for. Whether you've had one week with the paper or 15 years you still are capable of thinking. Ten years of photo work without proper thinking out of ideas will not make you as valuable a photographer as the one-year rookie who is always dreaming and trying to photograph his dreams.
>
> Your ability as a photographer is judged by your pictures, not by what you think or tell people, or by how long you have been on the staff. Yesterday's successes won't keep you going today. And right now, tomorrow's P-1 is just a blank piece of paper in the warehouse. How many columns of it will carry your byline?
>
> . . . You will become more valuable to the paper—and to yourself—if you start contributing unassigned pictures and picture ideas. Your bylined pictures in the paper speak pretty loudly as to your . . . ability. It's up to you to make them say what you'd like people to hear.

Education for Photojournalism

The role created for photojournalism since 1930 has made the education of the practitioner of increased importance. Technical developments—faster lenses, better films, wire and radio transmission of photographs—have come with bewildering rapidity. The New York *Daily News* printed a photo of the Grace Kelly-Prince Rainier marriage in Monaco one hour and nineteen minutes

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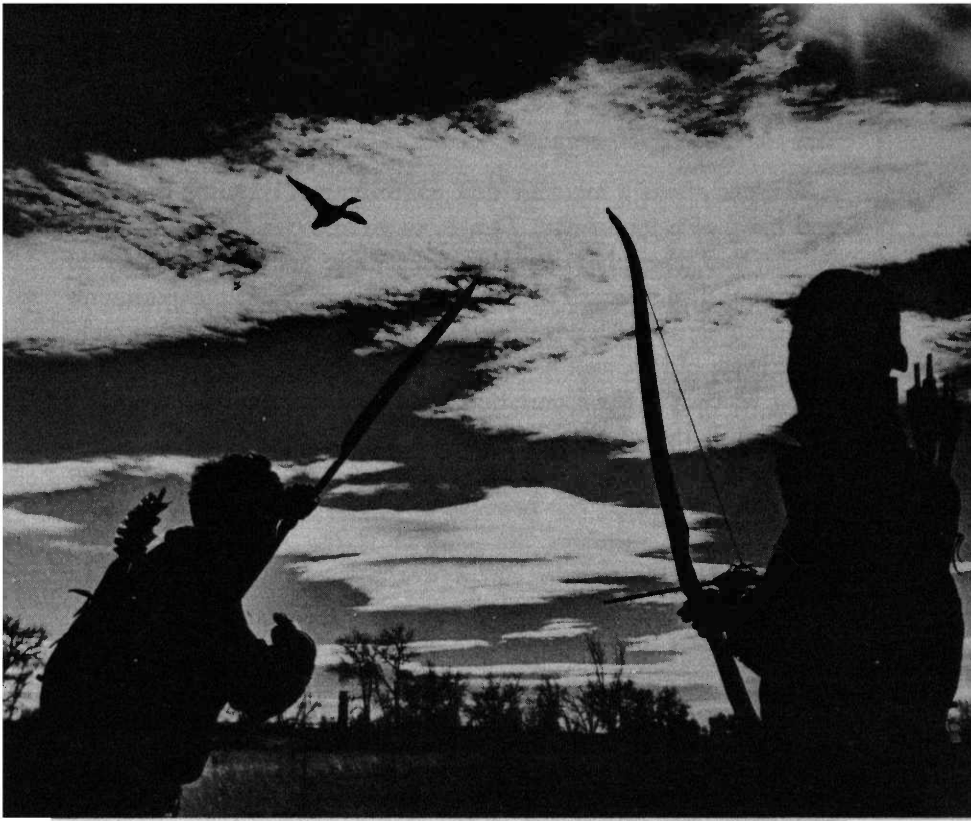
* Edward K. Thompson, Managing Editor of *Life* Magazine, from *How LIFE Gets the Story*, Doubleday. © 1955 Time Inc.



Albert Moldvay, *The Denver Post*

Dramatic backlighting, graphic forms in black and white, perfect timing, superb composition; all are combined in this outstanding picture. Note the arrow just below and to the left of the duck.

after the picture was snapped. The picture reached the *News* via Associated Press radio-photo. Such technical marvels are impressive, and the photographer is hard pressed to keep pace with matching improvements in picture content.

The photographer, of course, must be complete master of his tools and processes. A picture is made—or missed—in a fraction of an instant; so the photographer's reactions must be sure and swift; often there will be no second chance. His handling of camera controls and accessories must be automatic, much as he eats and speaks, without conscious thought about the muscular activity that carries out split-second decisions.

The camera is a machine and controlling it requires the mind and hand of a technician. This is no simple thing in itself for it means that the photographer must have some knowledge of physics and of chemistry, that he must be constantly experimenting, keeping up with new developments, and improving his technique with old as well as new tools. Craftsmanship, as in painting or writing, is the foundation for expression. But like the artist and writer, the photographer must have something to say that is worth saying. Great photographs are not great because of technical perfection, but because of the idea expressed, the content, the story message. "Because it is the photographer who decides what his camera will remember, it follows that his intellectual approach must be more significant than his methods," Ray Mackland, picture editor of *Life,* declared.[*]

The photojournalist's education extends beyond technique into the humanities, the sciences, and the social sciences. If possible, he studies painting, drawing, anatomy in the field of art; physics and chemistry in the sciences; sociology, political science, history, economics, and psychology in the social sciences. Formal education is only one way to acquire this background; self-directed reading and observation are means to the same end, although generally less effectual and more time-wasting. Without background knowledge, however acquired, the journalist has little hope of understanding the subject with which he deals: What does it mean? Why is it being written about or photographed? If he is unable to answer these basic questions, then he can produce only stories and pictures without force or substance. The photographer may hide or disguise imperfections in technique, but he cannot cover up his failure to understand the significance of the event he is reporting. The severest criticism of a picture is this: It has nothing to say.

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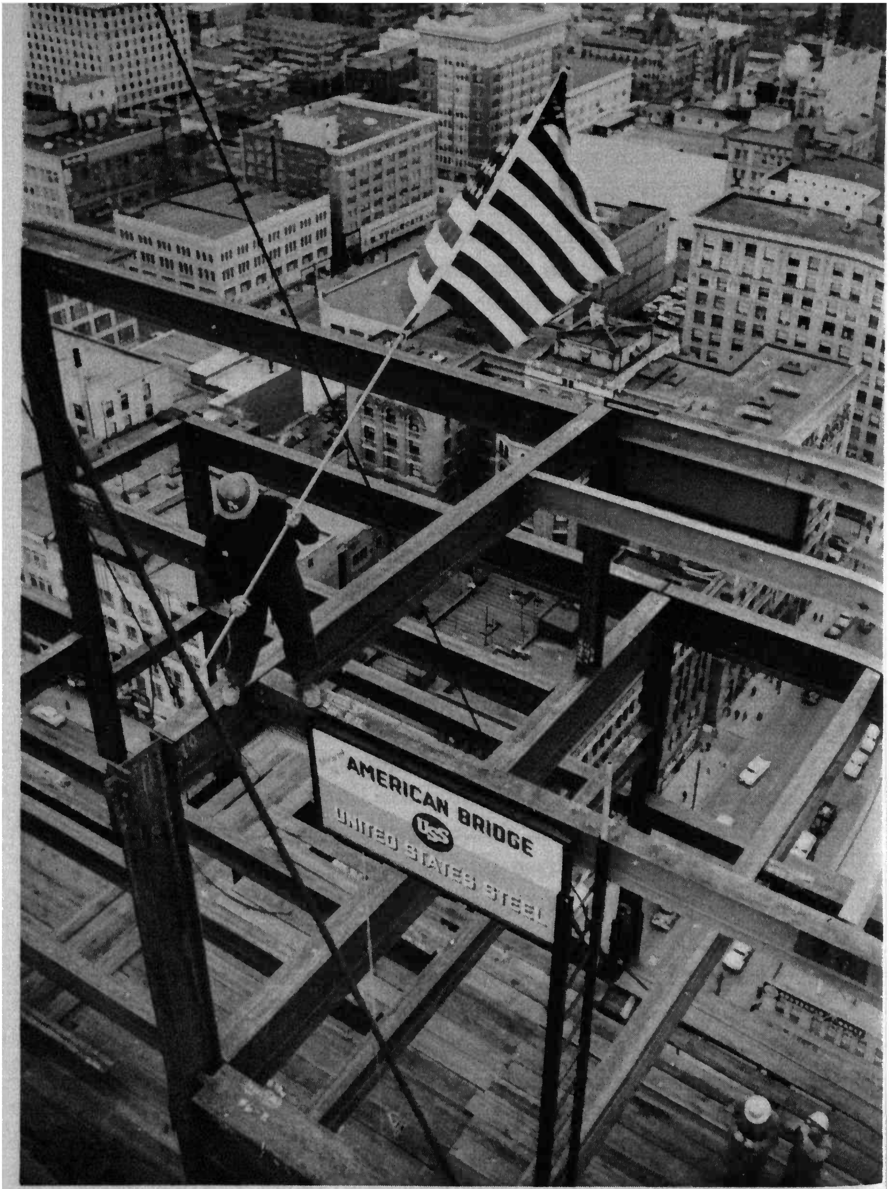
[*] At a Miami, Florida, photojournalism conference sponsored by the University of Miami and the American Society of Magazine Photographers.

Career Outlook

Approximately 5,000 persons were taking news pictures for daily newspapers in the United States in 1959, according to a survey made by the National Press Photographers Association. The survey did not include the nation's some 10,000 weeklies which have not been immune to the spread of picture-consciousness among the mass media. About one-half of the 5,000 men and women with cameras on the dailies fell into the "combination" or part-time category. This means that a great many reporters were carrying cameras as well as pencils and pads of paper. The survey revealed that sports writers, society editors, even publishers grab a camera now and then. These "combination" workers are most common on weeklies and on small and medium-size dailies, but the reporter who regularly uses both camera and typewriter is also found on some larger newspapers. One metropolitan paper, in another survey, listed eight of twenty-five persons in the photography department as combination men.

In addition to the thousands employed by newspapers, of course, there are a few hundred more employed by magazines, by the wire services (Associated Press and United Press International), and by syndicates which supply news and feature pictures. Probably a majority of these photographers were once newspaper-employed. Then, too, there are the relatively few persons who make their living in free-lance photojournalism. Photojournalism as a career field is much more likely to expand in the future than it is to contract.

The route to a successful career in photojournalism is one that requires a low, hard-pulling gear ratio. Such a career today will result from planning, proper education, and hard work. Photo staffs on metropolitan newspapers are large but turnover is small. One limited but indicative survey showed the average photographer on a group of large newspapers had nearly 20 years of



David Mathias, *The Denver Post*

The worker was raising the flag to mark completion of the steel structure for a new building. The photographer got the high angle of view by riding the bucket of a crane.

experience. The size of the metropolitan newspaper's photo staff varies from nine or ten to between forty and fifty and most of these photographers own their own cameras and other equipment. An equipment investment of more than $2,000 is common. The average large city newspaper photographer started either on a smaller paper or as a copy boy on the large paper. From copy boy he moved to the darkroom as lab assistant and then to the street with a camera. Openings occur more frequently on smaller newspapers as experienced men move to other jobs, and on small dailies and weeklies the demand for combination men, reporter-photographers, has quadrupled in recent years.

On the average the salary scale for photographers is approximately the same as that for writers. And the satisfactions of the job are major, on small or large newspaper, with magazine, or syndicate service. Here is the comment of Edward Steichen, one of America's greatest photographers and director of the Department of Photography of the Museum of Modern Art in New York City:

> Photographers working in the field of journalism have collectively made a major contribution to the art of photography. While much of their work is routine picture reporting, the best of it shows an exciting and revealing penetration.
>
> Photographic journalism is generally accepted as an authoritative source of visual information about our times. It now regularly reaches audiences all over the world on a scale unheard of a decade or two ago. It is becoming a new force in the molding of public opinion, and in explaining man to man. . . .*

Another great photographer who was a photojournalist before that word was ever invented, Mathew Brady, put it this way: "The camera is the eye of history. . . . You must never make bad pictures."

* Edward Steichen, from the foreword of *Memorable LIFE Photographs*, published by the Museum of Modern Art, New York, © 1951, Time Inc.

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